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# ANNUAL MEDICAL & SANITARY REPORT

## FOR THE YEAR 1961

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# SWAZILAND

## ANNUAL MEDICAL AND SANITARY REPORT
## 1961

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# GENERAL REVIEW

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Swaziland has an area of 6,704 square miles and is bordered on the north, west and south by the Transvaal, and on the east by Mozambique and Zululand.

The Territory is geographically divided into four well-defined regions, running from north to south, namely the mountainous highveld in the west with an altitude of 3,500 and 5,000 feet; the middleveld with an average altitude of 2,000 feet; and the lowveld or bushveld with an altitude of 700 feet to 300 feet. and the Lebombo Plateau on the east, with an altitude of 2,000 feet. Scenically the Territory is one of the most attractive parts of Africa. The highveld has a temperate climate and frosts occur during the winter. The climate of the middleveld is subtropical and that of the bushveld is almost tropical.

Rainfall, with occurs chiefly in the summer, varies between approximately 60" a year in the highveld and approximately 30" a year in the lowveld. Drizzle and mists are frequent in the highveld areas. The country is well-watered by numerous perennial streams and rivers, some of which are of a considerable size and now provide water for three large irrigation schemes which have been established at Mananga in the north-east, at Big Bend in the east (at both of which sugar is grown) and at Malkerns in the centre of Swaziland (which produces rice, sub-tropical fruit and citrus).

In addition to the irrigation schemes, other important agricultural activities are cattle ranching in the bushveld, sub-tropical fruit and rice production in the middleveld, in the southern portion of which a considerable amount of tobacco is also grown, and afforestation and sheep farming in the high veld. Significant mining development is at present restricted to the production of asbestos at Havelock Mine in the north west and a small amount of high-grade coal in the bushveld. Iron ore and additional coal deposits are about to be developed.

A census held in 1956 gave the total population of Swaziland as 237,041, of which 5,919 were Europeans and 1,378 Eurafricans. The present population is probably 270,000. One half of the area of the territory is in communal ownership of the Swazi Nation and the remainder owned by individual tenure farmers. The Swazi have the exclusive use of the communal tenure areas and the remainder is open to farmers of all races without discrimination. Swazi dwellings for the most part consist of wattle-and-daub structures, or bee-hive huts, and small family collections of these huts are widely dispersed. Other than in the nieghbourhood of the European towns, there are no villages. Whilst the agricultural activities of the Swazi are still, in the main, concentrated on the raising of cattle and goats and the cultivation of maize, the work of the Land Utilization Department is now producing results, and both the standard and scope of Swazi farming are improving year by year.

The medical needs of the Territory are met by Government Hospitals at Mbabane (151 beds), Hlatikulu (135 beds), Mankaiana (24 beds) and Pigg's Peak (22 beds); by Mission Hospitals at Manzini (310 beds), Mahamba (45 beds) and Stegi (35 beds); by 11 Government clinics (three of which are maintained by the Swazi National Treasury) and 15 Mission clinics in outlying areas; by the mine hospital at Havelock

/Mine .....

Mine; and by medical practitioners, either working on their own or employed by large industrial concerns, who are stationed at Mbabane, Manzini, Pigg's Peak, Stegi, Mhlambanyati, Malkerns, Mhlume, Big Bend, Mliba in the Manzini District, and at Sicunusa in the Mankaiana district. There are, in fact, 35 medical practitioners working in Swaziland at present, three of these who hold foreign unregistrable qualifications being licensed to practice, under the relevant section of the Medical, Dental and Pharmacy Proclamation. There is thus 1 doctor per 7,714 persons in Swaziland, in comparison with the accepted Western European standard of 1 doctor for 1,000 patients and the "South of the Sahara" average of 1 doctor per 10,000 persons. The 722 hospitals beds in use in Swaziland today give a ratio of 2.7 beds per 1,000 persons, as against the Western European average of 4 - 5 beds per 1,000. These figures are based on an estimated population of 270,000.

The Mbuluzi Leper Hospital, situated 10 miles from Mbabane and run by the Nazarene Mission, with the assistance of a Government grant, copes most adequately with the decreasing number of lepers in the Territory. There is no special tuberculosis hospital, but three general hospitals have separate tuberculosis wards. There is also no mental hospital, and dangerous and violent lunatics are detained and treated in sections of the gaols.

The British Red Cross Society is now running Infant Welfare Clinics at Mbabane, Hlatikulu, Stegi, Pigg's Peak and Goedgegun, at which most useful work is being done.

The Public Health services of the Territory are centered at the Health Office, Manzini, under the control of the Medical Officer of Health, in whose charge are also the malaria control unit and the bilharzia investigation unit.

The Medical Association of Swaziland, whose members include private practitioners, medical missionaries and Government medical officers, hold quarterly meetings, which are usually well supported and which make up to some extent for the lack of professional contact so common in territories such as Swaziland.

The Medical Department staffing position remained satisfactory in 1961, and all Medical Officer and Nursing Sister posts were filled. Applications for employment from African Staff Nurses continued to pour in and far exceeded the demand. Details of the staff at the various Government hospitals and at the Health office will be found in Appendix I, page 15 .

The training of nurses in Swaziland is carried out at the Ainsworth Dickson Training College attached to the Raleigh Fitkin Memorial Hospital. Two courses of nursing are carried out, the lower standard Swaziland Executive Nursing Committee course and the High Commission Territories Nursing Council course, which is considered to be on a par with the South African Nursing Council course. The policy is that when sufficient numbers of girls of the educational standard required for the High Commission Territories Nursing Council come forward, the Swaziland Executive Nursing Committee course then falls away. The Ainsworth Dickson Training College can at present train sufficient nurses

/for ....

for the needs of Swaziland. Dispensers and Laboratory Assistants are trained at Government hospitals as required, whilst the Medical Assistants on the staff of the Medical Department received their training in Nyasaland.

Since the successful malaria control programme has resulted in the near-eradication of the disease from Swaziland, tuberculosis is now the main health problem, and it is hoped to start a control programme with the assistance of World Health Organisation shortly. Bilharzia is widespread among the indigenous population, and whilst the clinical manifestations are usually minimal, it is felt that a potentially very dangerous position exists at the irrigation schemes, and a careful watch is being kept on conditions here. Malnutrition and infantile diarrhoea are important causes of ill-health and death amongst young children, the former being especially noticeable at the post-weaning age, and heart-diseases and pneumonia also rank high as causes of death.

The conditions which cause most attendances at Government hospitals are acute upper respiratory tract infections, diseases of the genito-urinary system, minor disorders of the digestive system, venereal disease, rheumatism and infections of the skin and subcutaneous tissues. Among the infectious diseases, enteric fever was again prevalent, although the majority of cases occurred sporadically.

Public Health duties are carried out by a Health Inspector and the Medical Officer of Health, but coverage at present can only be sketchy, as it is considered essential that the two other Health Inspectors devote their full time to malaria and bilharzia under the guidance of the Medical Officer of Health.

In April Mr. P. Hanson (U.N.I.C.E.F, Kampala), and Dr. P. Clement (W.H.O., Nairobi) visited Swaziland to discuss the W.H.O/U.N.I.C.E.F-sponsored Tuberculosis Control project, and they were followed in June by Dr. Mossige (W.H.O. Bacteriologist, Nairobi), who advised on the planning of the laboratory/clinic building to be erected as an extension to the Health Office in Manzini for the use of the W.H.O Tuberculosis Control team. In September it was a great pleasure to have another visit from a Consultant, under the Medical Visitors Scheme, in the person of Prof. K. V. Morris, of the Department of Obstetrics and Gynaecology, Manchester University. Professor Morris saw as many hospitals as possible during his visit, met the majority of the medical practitioners and addressed the Medical Association. His visit proved to be most stimulating.

In January the Director of Medical Services attended the meeting of the Co-ordination Board of the W.H.O South East Africa Malaria Eradication Programme in Salisbury, whilst in March, Dr. O. Mastbaum, previously Malaria Medical Officer in Swaziland and now W.H.O. Adviser on Malaria in Salisbury, visited the Swaziland Malaria Control Unit.

The New Year's Honours List announced the award of the M.B.E. to Dr. O. Arnheim, who retired in 1961 after 18 years service.

/

## CHAPTER I - PUBLIC HEALTH

### (i) COMMUNICABLE DISEASES.

Tuberculosis remains Swaziland's chief health problem, and the delay in implementing the W.H.O/U.N.I.C.E.F-sponsored control project, for a variety of reasons, is most disappointing, and it is hoped that the useful discussions held in Swaziland with Mr. Hanson (U.N.I.C.E.F) and Dr. Clement (W.H.O) will hasten matters. It is also disappointing to have to report the closing of the tuberculosis ward at Mahamba Methodist Hospital for financial reasons.

Maximum use continues to be made of existing in-patient and out-patient facilities for tuberculosis patients at Government and Mission hospitals and during 1961, figures from these hospitals revealed little change in the position, as a total of 1222 cases of tuberculosis were dealt with, with 76 deaths, as against 1129, with 68 deaths, in 1960.

In respect of Malaria this report covers the last transmission season - from July 1960 to June 1961, and the full accounts of the activities of the Malaria Control Unit of their entomological investigations will be found in the Medical Officer of Health's report at Appendix II (page 17).

Hut-spraying in the eastern portion of Swaziland was again carried out, and surveillance operations continued throughout the year. The position remained satisfactory, but the persistence of small foci of infection, shown by 95 positive blood slides (i.e. 0.6% of the 14,406 "indigenous" blood slides examined) create a problem and emphasises the difficulty of proceeding from "Malaria Control" to "Malaria Eradication". It is expected that the problem will be considerably eased when control measures already started in Mozambique become fully effective. The W.H.O Laboratory Technician seconded to Swaziland to assist in the training of local microscopists left in February after three months most valuable work here. Further assistance was forthcoming from W.H.O in February when Entomologist R. O. Darwish arrived in Swaziland, on a 3 months secondment, to study the behaviour of the vector mosquito in Swaziland, which previously appeared to be exophilic and zoophilic. This still appears to be the position in the northern parts of Swaziland, whilst in the South, and especially in the Big Bend area, the vector appears to feed indiscrimately on man or cattle. Dr. Darwish's work and assistance was of great value to the Malaria Control Unit staff, and as it was felt that more time should be given to these investigations, an application was forwarded to W.H.O for the secondment of an entomologist to Swaziland for 12 months, but it has not been possible to make an entomologist available. The precipitin testing of mosquito blood meals, which forms such an important part of the entomologist's investigations, is carried out by the Lister Institute of Preventative Medicine, Elstree.

The Bilharzia survey of the Territory was completed during the year and the results of this and of other investigational work carried out will also be found in the Medical Officer of Health's report in Appendix II.

The annual rise in the number of cases of Influenza reported since the Asian Influenza epidemic of 1957 did not continue into 1961, when the number of cases was 3,679 as against 4,848 in 1960, whereas the total number of cases

/of acute .....

of acute upper respiratory tract infection, including influenza was 14,866 as against 15,048 the previous year. No deaths from influenza were recorded.

Enteric Fever again caused an abnormally high number of cases (272 with 10 deaths as against 191 with 14 deaths in 1960) and Infantile Gastro-Enteritis remained as great a scourge as before, and little improvement in both these conditions is likely until there is a great improvement in rural sanitation and water supplies, and an appreciation by the people of the dangers inherent in unhygenic living conditions.

There is little change in the Leprosy position - and the report of of the Medical Superintendent of the Raleigh Fitkin Memorial Hospital on the Mbuluzi Leprosy Hospital will be found at Appendix III at page 47.

No cases of Smallpox were reported, and after the appointment of a full time vaccinator late in the year, 8,366 vaccinations were carried out.

Poliomyelitis accounted for 4 cases, with one death. Oral poliomyelitis vaccine, at 10c a dose, was offered in urban areas and other centres where there were concenstrations of population, and the response was good. Details of the campaign will be found in the report by the Medical Officer of Health in Appendix II.

Measles and Whooping Cough were a prevalent as usual, whilst 6 cases of Diphtheria, with two deaths, occurred.

The number of cases of Syphilis treated in 1961 rose from 1,117 in 1960 to 1,604, whilst the number of cases of Gonorrhoea fell slightly, from 3,820 to 3,518. The general pattern of the past 12 years of a fall in the number of cases of syphilis and a rise in the number of cases of gonorrhoea remains, however. The number of subsequent attendances for treatment in 1961 were

| | |
|---|---|
| Gonorrhoea | 4,734 |
| Syphilis | 2,976 |

The above figures are from hospitals and clinics and will not agree with the figures given in the nosological returns in Appendix X which are from hospitals only.

### (ii) Nutritional and Deficiency Diseases.

In March 1961 work was started on a nutrition survey of Swaziland, the field work of which was to last a year. The survey is being carried out by Miss Sonya Jones, M.Sc., working on a Natal University fellowship, and assisted by two local registered nurses. Intensive surveys are to be made on selected areas of the highveld, middleveld, and lowveld, as well as of a peri-urban area. It is expected that the field work will be completed by April 1962, and that the report will be available early in 1963. Whilst there is ample evidence of the existence of malnutrition in all hospitals and clinics in Swaziland, accurate information of the actual diet of the Swazi, and its deficiencies, and also of the food available, is sadly lacking, and it is hoped that with the assistance of Miss Jones' report, it will

/be possible .....

be possible to plan action to combat the menace of malnutrition.

In 1961 there was a further rise in the number of cases of nutritional disease reported at Government and Mission hospitals in Swaziland and the total number of cases seen since 1952 is as follows:-

| | |
|---|---|
| 1952 | 147 |
| 1953 | 286 |
| 1954 | 388 |
| 1955 | 330 |
| 1956 | 454 |
| 1957 | 1,010 |
| 1958 | 1,459 |
| 1959 | 2,010 |
| 1960 | 2,196 |
| 1961 | 2,864 |

The "break-down" of the 1961 cases was as follows:-

| | |
|---|---|
| Malnutrition, unqualified | 1426 - 41 deaths |
| Pellagra | 938 - 6 " |
| Kwashiorkor | 487 - 24 " |
| Scurvy | 13 |

An allocation of 60,000 lbs of dried milk per annum has been made to Swaziland by U.N.I.C.E.F, for free distribution to children in need of a dietary supplement, and to pregnant and lactating women. The first consignment of this generous and most welcome gift was received in March - and the milk was subsequently widely distributed from clinics and by the Red Cross and other welfare organisations, and was very well received.

### (iii) Sanitation, Water Supplies, Food Supplies.

General sanitary conditions in the urban areas have remained satisfactory whilst rural conditions characterised by polluted water supplies and lack of sanitary facilties remain unchanged and are a constant source of danger.

The details report on public health matters will be found in the report by the Medical Officer of Health in Appendix II.

## CHAPTER II - HOSPITALS AND CLINICS.

The only building operation carried out during the year was the construction of a clinic at Mahlangatsha in the Mankaiana district, which was previously entirely without medical facilities. The building was the result of a combined operation by the people of Mahlangatsha, who provided the necessary stone, sand and bricks, the Prisons Department, who posted a warder-builder and convicts to the project, the Medical Department, who supplied timber, cement and other building materials and the equipment, and the District Commissioner, who supervised the construction. The clinic is staffed by a trained nurse and is operating satisfactorily, and until a Medical Officer can be placed at Mankaiana, it is visited regularly by a Medical Officer from Mbabane Hospital .

Although the number of in-patients dealt with at Government hospitals fell somewhat in 1961, the daily average number

of patients (viz. 436) was still considerably greater than the number of beds available (i.e. 332). The number of out-patients treated at Government hospitals and clinics and the number of in-patients and out-patients treated at Mission hospitals and clinics increased significantly during the year.

Details of the number of patients dealt with at the various hospitals and clinics will be found at Appendix IV on page 50.

### Havelock Mine Hospital.

The number of Africans who were not mine employees or their dependants who were treated at Havelock Mine Hospital during 1961 was as follows:-

| | |
|---|---|
| Number of admissions | 234 |
| Number of out-patients (new cases) | 328 |
| Number of out-patients (re-attendances) | 126 |
| Daily number of in-patients | 6.4 |

### Medico-Legal Postmortem Examinations.

The number of medico-legal postmortem examinations carried out at the various Government and subsidised Mission hospitals in 1961 was as follows:-

| | |
|---|---|
| Mbabane Hospital | 44 |
| Hlatikulu Hospital | 56 |
| Pigg's Peak Hospital | 12 |
| Raleigh Fitkin Memorial Hospital | 41 |
| Good Shepherd Hospital | 20 |

### Medical Examination of School Children.

During the year, Dr. W. Laufer, Medical Superintendent of Mahamba Methodist Hospital, carried out medical examinations of all pupils at the Mission's schools in southern Swaziland. The results, which follow, show a large number of defects, the high percentage of children with anaemia being very noticeable. These examinations will continue, and it is hoped to be able to obtain figures from other parts of Swaziland for comparison.

/Mahamba .....

## MAHAMBA METHODIST HOSPITAL

## REPORT ON SCHOOL HEALTH SERVICE 1961

| School | BOYS Exam. | BOYS Defects. | GIRLS Exam. | GIRLS Defects. | TOTAL Exam. | TOTAL Defects |
|---|---|---|---|---|---|---|
| Mashobeni | 43 | 39½% | 55 | 44% | 98 | 42% |
| Mahlangatsha | 100 | 36% | 94 | 53% | 194 | 44½% |
| Gege | 91 | 53% | 118 | 44% | 209 | 54½% |
| Mahamba | 198 | 57% | 232 | 43% | 430 | 49% |
| Nsongweni | 180 | 30% | 160 | 52% | 340 | 41% |
| Nyamane | 53 | 28% | 48 | 15% | 101 | 21½% |
| Nkoneni | 23 | 35% | 39 | 36% | 62 | 35½% |
| Thembelihle | 80 | 50% | 52 | 42% | 132 | 46% |
| Maduleni | 51 | 53% | 49 | 67% | 100 | 60% |
| Seyendla | 6 | 33% | 9 | 55% | 15 | 44% |
| Dudusini | 10 | 30% | 29 | 51% | 39 | 40½% |
| Usuthu | 71 | 53% | 43 | 42% | 114 | 47½% |
| Thawela | 88 | 31% | 90 | 53% | 178 | 42% |
| TOTALS | 994 | 41% | 1018 | 46% | 2012 | 43½% |

Total of boys examined = 994; total unhealthy = 432
" " girls " = 1018; " " " = 473
All pupils examined = 2012; all unhealthy = 905

---

## ANALYSIS OF DISEASE GROUPS

| | Unhealthy Pupils | | | | | | All Pupils | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Boys | | Girls | | Pupils | | Boys | | Girls | | Pupils | |
| Anaemia | 156 | 17% | 237 | 26% | 905 | 100% | 156 | 7½% | 237 | 12% | 2012 | 100% |
| Ear/Nose/ Throat | 96 | 10½% | 112 | 12% | 905 | 100% | 96 | 4½% | 112 | 5½% | 2012 | 100% |
| Mal-nutrition | 54 | 6% | 23 | 2½% | 905 | 100% | 54 | 2½% | 23 | 1% | 2012 | 100% |
| Respiratory | 63 | 7% | 47 | 5% | 905 | 100% | 63 | 3% | 47 | 2½% | 2012 | 100% |
| Skins | 30 | 3% | 14 | 1½% | 905 | 100% | 30 | 1½% | 14 | ½% | 2012 | 100% |
| Visual Defect | 89 | 18% | 103 | 21% | 500 | 100% | 89 | 8% | 103 | 9% | 1162 | 100% |

N.B. Vision tested only from Standard 1 and up.

| | | | | | |
|---|---|---|---|---|---|
| Some individual diseases: | Cardiacs | Males | 7, | Females | 1 |
| | Cripples | " | 2, | " | 2 |
| | Imbeciles | " | 1, | " | 0 |
| | Deaf | " | 1, | " | 0 |
| | Trachoma | " | 1, | " | 1 |

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/Chapter III .....

## CHAPTER III

## MATERNITY AND CHILD WELFARE SERVICES.

Ante-natal clinics are held at all Government and Mission Hospitals, and at most of the outlying clinics. In previous years, it was necessary to encourage Swazi women to come into hospital for their confinements, but the maternity wards are now so popular that overcrowding may shortly necessitate restricting admissions to primiparous women and others in whom difficulty is expected.

The number of antenatal examinations and confinements carried out during the past 4 years has been as follows:-

| | Antenatal Examinations | | | | Confinements | | | |
|---|---|---|---|---|---|---|---|---|
| | 1958 | 1959 | 1960 | 1961 | 1958 | 1959 | 1960 | 1961 |
| Mbabane Hospital | 2212 | 2068 | 1704 | 2130 | 586 | 436 | 611 | 705 |
| Hlatikulu Hospital | 3183 | 1373<br>++ | 1315<br>++ | 1298<br>++ | 196 | 247 | 375 | 409 |
| Mankaiana Hospital | 486 | 694 | 1798 | 983 | 147 | 154 | 171 | 188 |
| Pigg's Peak Hospital | 99 | 636 | 807 | 930 | 27 | 146 | 168 | 221 |
| Raleigh Fitkin Mem.Hospital & Clinics | 4888 | 4998 | 5722 | 4996 | 853 | 1054 | 1276 | 979 |
| Good Shepherd Hospital | 467 | 1242 | 791 | 972 | 137 | 137 | 132 | 139 |
| Mahamba Methodist Hospital | 712 | 584 | 550 | 192 | 71 | 76 | 84 | 79 |

++ = Excludes figures for clinics which were previously included.

Child Welfare clinics have continued at the Nazarene Mission health centres and also at the Government clinics at Sipofaneni, Mhlotsheni and Lubuli where the following attendances were recorded -

| | | |
|---|---|---|
| Sipofaneni | 1099 | |
| Lubuli | 250 | |
| Mhlotsheni | 154 | (for the month of January only). |

/Chapter IV .....

## CHAPTER IV - TRAINING OF AFRICAN NURSES.

Nurses are trained at the well-equipped Ainsworth Dickson Nursing College, attached to the Raleigh Fitkin Memorial Hospital at Manzini, **for** the High Commission Territories Nursing Council certificates in General Nursing and Midwifery, the syllabuses of which are based on those of the South African Nursing Council. In the past training was also offered for the Swaziland Executive Nursing Committee certificates in General Nursing and Midwifery, which are of a lower standard and for which the educational requirement is only Standard VI. As a sufficient number of candidates with the higher educational standard required by the High Commission Territories Nursing Council (viz. Junior Certificate) are now available, candidates for training for the Swaziland Executive Nursing Committee certificates are no longer accepted.

The results of the examinations held during the year were as follows:-

| HIGH COMMISSION TERRITORIES NURSING COUNCIL | Passed | Failed |
|---|---|---|
| Preliminary Examination in General Nursing | | |
| June 1961 | 2 | - |
| November 1961 | 13 | 3 |
| Final Examination in General Nursing, November 1961 | 3 | - |
| Midwifery Examination, November 1961 | 3 | - |
| **SWAZILAND EXECUTIVE NURSING COMMITTEE** | | |
| Preliminary Examination in General Nursing November 1961 | 4 | 1 |
| Final Examination in General Nursing November 1961 | 7 | 1 |
| Midwifery Examination November 1961 | 7 | 1 |

The number of nurses in training at end of December 1961 was

| | | |
|---|---|---|
| General Nurses | 1st year | 22 |
| | 2nd year | 16 |
| | 3rd year | 13 |
| | 4th year | 3 |
| Midwifery Students | | 11 |
| | | 65 |

## CHAPTER V - LABORATORY SERVICES.

The Pathology Laboratory in Mbabane continues to function satisfactorily - and to fulfil a very useful purpose in dealing with serology, cultures, sensitivity tests and blood chemistry on a territorial basis.
Histological examinations and certain other investigations continue to be carried out at the South African Institute

/for Medical ......

for Medical Research in Johannesburg, whilst the small laboratories at Mbabane Hospital, Hlatikulu Hospital, Raleigh Fitkin Memorial Hospital, Good Shepherd Hospital and Mahamba Hospital continue to deal with the less complicated laboratory work.

The routine examination of blood slides for malaria parasites and of urines and stools for bilharzia ova, are carried out at the Health Office at Manzini, and the results of these examinations are reported under the sections dealing with malaria and bilharzia, and are not included in the figures which follow:-

(i) PATHOLOGY LABORATORY, MBABANE.

| | Total | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Culture | 219 | 30 | 17 | 16 | 17 | 14 | 16 | 8 | 8 | 18 | 16 | 30 | 29 |
| Widal (TMX) | 733 | 82 | 72 | 55 | 46 | 53 | 49 | 32 | 45 | 70 | 65 | 98 | 66 |
| Stool Culture | 92 | 8 | 4 | 5 | 6 | 8 | 3 | 5 | 3 | 21 | 6 | 13 | 10 |
| Stool Parasites | 108 | 5 | 7 | 17 | 6 | 6 | 3 | 5 | 5 | 21 | 12 | 11 | 10 |
| Urine complete | 55 | 5 | 4 | 8 | 12 | 10 | 4 | 2 | 0 | 4 | 1 | 5 | 0 |
| Urine bilharzia | 26 | 0 | 2 | 1 | 0 | 1 | 0 | 3 | 0 | 3 | 7 | 8 | 1 |
| T.B. direct | 225 | 16 | 27 | 17 | 21 | 27 | 10 | 9 | 13 | 17 | 27 | 30 | 11 |
| T.B. culture | 27 | 2 | 3 | 3 | 3 | 0 | 0 | 2 | 1 | 4 | 3 | 4 | 2 |
| Blood Sugar | 19 | 2 | 1 | 1 | 0 | 3 | 0 | 0 | 3 | 1 | 8 | 0 | 0 |
| Blood Urea | 20 | 0 | 2 | 0 | 2 | 0 | 4 | 5 | 1 | 0 | 0 | 3 | 3 |
| Serum Protein | 18 | 0 | 1 | 0 | 5 | 0 | 4 | 2 | 3 | 2 | 0 | 1 | 0 |
| Serum Bilirubin | 5 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| C.S.F. | 31 | 0 | 2 | 3 | 2 | 5 | 4 | 5 | 0 | 6 | 0 | 1 | 3 |
| Malarial Slides | 25 | 2 | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 5 | 11 | 1 | 0 |
| Cultures | 79 | 4 | 3 | 6 | 6 | 13 | 9 | 6 | 6 | 9 | 7 | 5 | 5 |
| Sensitivity Tests | 84 | 0 | 4 | 5 | 16 | 12 | 11 | 8 | 6 | 8 | 7 | 5 | 2 |
| Grouping | 6 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Blood Count | 56 | 5 | 3 | 6 | 4 | 11 | 5 | 1 | 3 | 6 | 8 | 10 | 3 |
| Slides for Microscopy | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Diphtheria | 31 | 2 | 4 | 3 | 1 | 2 | 3 | 1 | 2 | 7 | 4 | 2 | 0 |
| Water Analysis | 114 | 2 | 6 | 9 | 7 | 12 | 18 | 12 | 8 | 8 | 10 | 10 | 12 |
| Cows Abortus | 30 | 0 | 0 | 6 | 4 | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 15 |
| Slides for Leprosy | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| E.S.R. | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| V.D.R.L Test | 5496 | 422 | 464 | 492 | 417 | 491 | 462 | 465 | 375 | 507 | 489 | 519 | 388 |
| Total | 7501 | 590 | 627 | 657 | 577 | 659 | 608 | 572 | 484 | 719 | 682 | 759 | 567 |

(ii) Hospital Laboratories

| | Mbabane Hospital | Hlatikulu Hospital | Raleigh Fitkin Memorial Hospital | Good Shepherd Hospital | Mahamba Hospital |
|---|---|---|---|---|---|
| Urine Examinations (including microscopy | 6.342 | 3,295 | 5,976 | 200 | 137 |
| Stool Examinations | 1,005 | 1,239 | 61 | 20 | 123 |
| Sputum Examinations | 1,731 | 707 | 372 | 15 | 46 |
| Other Bacteriological Smears | 2,997 | 5 | 2 | 60 | - |
| Full Blood Counts | 424 | - | - | 120 | 20 |
| Red Cell Counts | - | 14 | - | 80 | - |
| White Cell Counts | 90 | 92 | - | 150 | - |
| E.S.R. | 1,172 | 592 | 2,424 | 90 | - |
| Haemoglobin Estimations | - | 207 | - | - | - |
| Blood Films for Parasitology | - | 21 | 120 | - | - |

## CHAPTER VI - VITAL STATISTICS.

The registration of births and deaths is compulsory only in the case of European inhabitants of Swaziland, and available statistics are consequently of limited value. They are as follows:-

| | |
|---|---|
| Total European population (1956 Census) | 5,932 |
| European births 1961 | 88 |
| European deaths 1961 | 28 |
| Deaths of European infants under 1 year in 1961 | 2 |

/Chapter VII .....

## CHAPTER VII - PRISONS

Regular medical inspections of the prisons at Mbabane, Hlatikulu, Manzini and Stegi have been carried out, and in spite of overcrowding and antiquated buildings, sanitary conditions and the health of the prisoners have been satisfactory on the whole.

Mentally disordered patients in need of care and supervision are cared for in the prisons - the majority being housed in Mbabane Gaol. This is a most unsatisfactory state of affairs - and a mental hospital in Swaziland is urgently required.

## CHAPTER VIII - LEGISLATION

Legislation effected the Medical Department enacted during 1961 was -

High Commissioner's Notice No. 30 of 1961 - Abattoir Regulations - Amendment,

Proclamation No. 45 of 1961 - Town Planning

Government Notice No. 31 of 1961 - Amendment to Government Hospital Charges,

Proclamation No. 50 of 1961 - The Medical, Dental and Pharmacy (Amendment) Proclamation, 1961.

/Chapter IX .....

## CHAPTER IX - FINANCE.

The financial statement of the Department for the period 1st April 1960 to 31st March 1961 is as follows:-

| | R | R |
|---|---|---|
| Revenue | | |
| Hospital, Health Centre and other fees | 14,239 | |
| Expenditure. | | |
| Personal Emoluments | 166,422 | |
| Travelling Expenses | 7,742 | |
| Operation & Maintenance of Vehicles | 2,925 | |
| Other Transport Charges | 9,250 | |
| Allowances & Fees - Medical | 5,799 | |
| Maintenance of Patients | 54,991 | |
| Maintenance of Mental Patients | 6,161 | |
| Lighting and Heating | 5,348 | |
| Purchase of Plant and Equipment | 8,386 | |
| Upkeep of Grounds | 426 | |
| Anti-Malaria Measures | 8,792 | |
| Bilharzia Control | 597 | |
| Laboratory Services | 2,397 | |
| Public Health Measures | 62 | |
| Sample Nutrition Survey | 140 | |
| Grants to Missions | 35,862 | |
| High Commission Territories Nursing Council | 270 | 315,570 |
| C.D.W. Schemes Expenditure | | |
| D.5002 Extensions to Pigg's Peak Hospital | 3,944 | |
| Total Expenditure on Medical & Sanitary Services | | 315,570 |
| Total Revenue of Territory | | R3,125,070 |
| The relationship of medical expenditure (territorial) to total revenue of Territory | | 10.09% |

## CONCLUSION.

I wish to express my sincere appreciation of the loyal and efficient manner in which members of the Department carried out their duties during the year, often under extremely difficult conditions.

B. D. WHITWORTH

DIRECTOR OF MEDICAL SERVICES.

## APPENDIX I.

## MEDICAL DEPARTMENT STAFFING (AS AT 31.12.61)

### (a) DIVISION I AND II.

| | Name | Station |
|---|---|---|
| Director of Medical Services | Dr. B.D. Whitworth | Mbabane |
| 1 Medical Officer of Health | Dr. R.D. Gauldie | Manzini |
| 8 Medical Officers | Dr. L.E.D.F.Joubert | Mbabane |
| | Dr. J.F. Alexander | Mbabane |
| | Dr. F. Friedman | Pigg's Peak |
| | Dr. J.M.L. Klopper | Hlatikulu |
| | Dr. A.M. Nxumalo | Mbabane |
| | Dr. D.M. Macfadyen | Hlatikulu |
| | Dr. S.P.N. Shongwe | Hlatikulu |
| 2 Pharmacist/Storekeepers | Mr. J.L.van der Vyver | Hlatikulu |
| | Mr. G.R. Gibbon | Mbabane |
| 2 Matrons | Miss E.M. Bailey | Mbabane |
| | Miss J. A. Wilson | Hlatikulu |
| 13 Nursing Sisters | Miss D. E. Burns | Hlatikulu |
| | Miss A. Martin | Hluti Health Centre |
| | Mrs. P. T. Mdiniso | Mbabane |
| | Mrs. A.C.T. Mabuza | Mbabane |
| | Mrs. S.M. Cooper | Mbabane |
| | Mrs. A.L. Ogden | Mankaiana |
| | Miss J. Renzema | Mbabane |
| | Mrs. S. Dowling | Goedgegun |
| | Mrs. D. Bell | Mbabane |
| | Miss M. Dolman | Hlatikulu |
| | Mrs. J. I. Jenner | Mbabane |
| | Mrs. N. N. Dludlu | Hlatikulu |
| | Mrs. V.W.S. Mabuza | Pigg's Peak |
| 1 Radiographer | Miss R. J. O'Shea | Mbabane |
| 1 Laboratory Technician | Mrs. M. E. Gibbon | Mbabane |
| 3 Health Inspectors | Mr. G.J. van Eeden | Manzini |
| | Mr. D.M. Eckard | Manzini |
| | Mr. J.F. Bateson | Manzini |
| 3 Medical Assistants | Mr. J.B. Mwali | Mankaiana |
| | Mr. E.S. Njenje | Mbabane |
| | Mr. A.F.K. Phiri | Hlatikulu |
| 1 Housekeeper (Mbabane Hospital) | Mrs. M. McCall | Mbabane |
| 1 Administrative Assistant | Mr. J. H. Thomas | Mbabane |
| 1 Accounts Clerk | Mr. W. J. Bujela | Mbabane |
| 1 Lady Clerk | Mrs. D.M.C. Lane | Mbabane |
| 1 Clerk (Higher Grade) | Mr. M. Mdiniso | Mbabane |

### (b) DIVISION III.

3 Dispensers
2 Pupil Dispensers
3 Laboratory Assistants
4 Clerks

/Nurses .......

(b) Division III continued

| | |
|---|---|
| 78 | Nurses |
| 4 | Out-patient Attendants. |
| 7 | Ambulance and Truck Drivers |
| 1 | Senior Malaria Assistant |
| 10 | Malaria Assistants |
| 3 | Bilharzia Field Assistants |
| 1 | Vaccinator |
| 4 | Dispensary Orderlies |
| 9 | Ward Attendants |
| 21 | Orderlies |
| 3 | Nurse Aides |
| 3 | Wardmaids |
| 12 | Laundresses |
| 2 | Seamstresses |
| 2 | Office Messengers |
| 2 | Night Watchmen |
| 5 | Groundsmen |
| 5 | Cooks |
| 3 | Assistant Cooks |
| 5 | Housemaids |

## APPOINTMENTS, PROMOTIONS, RESIGNATIONS, RETIREMENTS IN DIVISION I AND II DURING 1961

### APPOINTMENTS

| | | |
|---|---|---|
| Dr. S. P. N. Shongwe, | Medical Officer, | 1.4.61 |
| Miss J. Renzema | Nursing Sister | 1.3.61 |

### PROMOTIONS

| | |
|---|---|
| Mrs. N. N. Dludlu to Nursing Sister | 1.4.61 |
| Mrs. V.W.S. Mabuza to Nursing Sister | 1.4.61 |

### RESIGNATIONS

| | | |
|---|---|---|
| Dr. S. R. Platman | Medical Officer | 8.12.61 |
| Miss M.A. von Wissell | Nursing Sister | On leave pending resignation. |
| Mrs. M. Clements | Nursing Sister | 10.1.61 |

APPENDIX II.

## ANNUAL REPORT BY MEDICAL OFFICER OF HEALTH, 1961

### I. COMMUNICABLE DISEASES.

The activities of the department have continued to be directed towards the maintenance of a healthy population with particular reference to the control of communicable diseases.

MALARIA. The Malaria position in the territory remains satisfactory. After the minor epidemic of the disease that occurred in the Big Bend area during the 1959/60 season it became necessary to re-introduce hut spraying in a strip of the territory along the eastern border. This action was deemed necessary on account of the rapid change in behaviour that occurred in the mosquito population of the area. Mosquitos that had for years shown no tendency to inhabit huts or to biteman, suddenly began doing so. It is thought that a different strain of A. gambiae was introduced from neighbouring uncontrolled areas and that the weather conditions at the time were ideal for their rapid reproduction. Infection of mosquitos was through the medium of the immigrants from neighbouring territories, large numbers of which are parasite carriers.

Hut-spraying was carried out during the 1960/61 season with gratifying results. No further minor epidemics occurred and the malaria cases reported during the season have all been sporadic in distribution. Entomologically the position has reverted back to the original and we assume that the introduced strain of A. gambiae has been eradicated.

Surveillance operations continued throughout the territory and during the 1960/61 season 17,894 blood slides were examined for malaria parasites, and of these 321 were positive. However, of the positives, 226 were from immigrants. The 95 positive cases from the indigenous population might appear to be a high figure, but it should be remembered that most of these are old parasite carriers that are being searched for in an effort to eradicate the parasites from the local population. (See Table A).

The entomological aspect of surveillance was continued throughout the season, with regular checks on mosquito breeding, check spraying huts, night catching using trap nets and baited nets, and precipitin testing of the blood found in fed mosquitos. Having reached the present position it may be possible to reduce expenditure on hut spraying in the near future if the entomological picture continues to be satisfactory.

The Health Inspector's [illegible], report on the activities of the malaria control unit follows :-

### ANNUAL REPORT : MALARIA, JULY 1960 - JUNE 1961.

### 1. CLIMATIC CONDITIONS.

The winter season had been drier and colder than usual. Fairly good spring rains fell throughout the bushveld areas in September and this was followed by sporadic showers during the first week of October. A hot and dry spell which then set in was broken by further rains and cooler weather during

/the second ......

TABLE A

## MALARIA SURVEILLANCE 1960 - 1961 PARASITOLOGY

| | July-Dec. 1960 | Jan.-June 1961 | Total | No. Positive | % Positive |
|---|---|---|---|---|---|
| No. of Blood Slides examined | 8138 | 9756 | 17,894 | 321 | 1.8 |
| Age Groups - Infants 0 - 1 year | 451 | 703 | 1,154 | 7 | 0.6 |
| Children 1 - 12 years | 4987 | 4662 | 9,649 | 73 | 0.7 |
| Adults over 12 years | 2700 | 4391 | 7,091 | 241 | 3.0 |
| From Indigenous Population | 6692 | 7714 | 14,406 | 95 | 0.6 |
| From Immigrant Population | 1446 | 2042 | 3,488 | 226 | 6.4 |

| | Mozambique | Zululand | Transvaal | Other | Total |
|---|---|---|---|---|---|
| Analysis of Immigrant Positive Slides | 177 | 34 | 9 | 6 | 226 |

| Analysis of Positive Slides in Age Groups | | Indigenous | Immigrant |
|---|---|---|---|
| | Infants 0 - 1 year | 2 | 5 |
| | Children 1 - 12 years | 58 | 15 |
| | Adults over 12 years | 35 | 206 |

Taking these figures into consideration - The Territorial Infant Parasite Rate is approx. 0.2%
" " " Child " " " " 0.6%
" " " Adult " " " " 0.5%

the second week of November. Since then good average rain with some severe storms, accompanied by wind and hail in places, continued through December 1960. Conditions most favourable for A. gambiae breeding were thus established throughout the lowveld area.

Drought conditions then set in, and it was exceptionally hot and dry until the middle of February 1961 when rain fell in localised areas. It is of interest to note that during January and February, Manzini registered its lowest rainfall on record during the past 59 years.

Scattered showers then continued during March 1961 and built up to very heavy precipitations toward the end of the month when over 10 inches were registered during one night at three of the highveld climatic stations.

The ideal conditions for Malaria vector mosquitos continued during April and May when the rainfall and warmer conditions were above the average. Light sporadic winter showers and colder conditions were experienced during June.

The rainfall and temperatures recorded at six climatic stations are given in Table B, on p.20.

## 2. POPULATION AND HUT COUNT.

The annual field staff meeting was held at Manzini during the first week in August. Lectures were given on malaria, bilharzia, tapeworm infestation, sanitation and general hygiene.

A demonstration on bloodslides was given by a technician of the World Health Organisation who was attached to the Health Office for several months to train our local staff on malaria microscopy.

A census of huts and population in the surveillance area was completed in October.

On account of staff difficulties the densely populated middleveld areas, extending from Manzini to Ezulwini and Ntondozi, were not included in this survey -

Results

| Total No. of Huts | Total Population. |
|---|---|
| 8,800 | 50,284 |

## 3. MALARIA CONTROL.

### (a) Chemo-prophylaxis:-

Approximately 4,500 Africans engaged by three large estates namely the Big Bend Sugar farms, Mhlume Sugar Company and the Swaziland Irrigation Scheme were treated monthly with Daraprim (pyrimethamine) at the dosage of 25 mgm per adult.

All immigrants and sick people in the surveillance area, suspected of having malaria received a course of

TABLE B. METEOROLOGICAL RECORDS.

| | Manzini Altitude 2000 ft | | | Balegane Altitude 1100 ft | | | Sipofaneni Altitude 800 ft | | | St. Phillips Altitude 600 ft. | | | Wisselrode Altitude 500 ft. | | | Stegi Altitude 2200 ft. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rain-fall | Temp. (Mean) | | Rain-fall | Temp. (Mean) | | Rain-fall | Temp. (Mean) | | Rain-fall | Temp. (Mean) | | Rain-fall | Temp. (Mean) | | Rain-fall | Temp. (Mean) | |
| | Actual | Max. | Min. | Actual | Max. | Min. | Actual | Max. | Min | Actual | Max. | Min. | Actual | Max. | Min | Actual | Max. | Min. |
| 1960 | | | | | | | | | | | | | | | | | | |
| July | 0.04 | 73.4 | 48.9 | 0.12 | 76.3 | 39.9 | 0.06 | Not | taken | 0.00 | Not | taken | 0.05 | 77.4 | 39.6 | 0.30 | 69.4 | 50.7 |
| Aug. | 0.75 | 77.2 | 54.0 | 0.81 | 80.8 | 51.6 | 0.39 | " | " | 0.49 | " | " | 0.63 | 82.0 | 52.2 | 0.33 | 78.1 | 54.7 |
| Sept. | 2.08 | 77.5 | 55.6 | 2.14 | 81.3 | 56.3 | 1.67 | " | " | 1.15 | " | " | 1.50 | 82.2 | 56.7 | 1.67 | 75.4 | 55.0 |
| Oct. | 2.71 | 81.3 | 61.3 | 2.15 | 86.2 | 62.4 | 1.76 | " | " | 2.40 | " | " | 1.88 | 87.4 | 63.5 | 2.50 | 79.7 | 58.4 |
| Nov. | 6.41 | 80.4 | 62.6 | 4.37 | 84.0 | 64.4 | 4.39 | " | " | 4.67 | " | " | 5.59 | 85.8 | 65.7 | 4.12 | 78.8 | 65.6 |
| Dec. | 10.73 | 81.6 | 65.4 | 8.32 | 87.6 | 66.9 | 10.15 | " | " | 6.94 | " | " | | 87.1 | 68.1 | 6.85 | 80.7 | 63.3 |
| 1961 | | | | | | | | | | | | | | | | | | |
| Jan. | 0.41 | 87.4 | 66.0 | 2.62 | 91.9 | 66.9 | 0.00 | " | " | 0.51 | " | " | 0.57 | 91.2 | 66.4 | 3.46 | 86.2 | 64.2 |
| Feb. | 3.54 | 86.2 | 66.2 | 1.56 | 91.4 | 66.9 | 0.00 | " | " | 0.62 | " | " | 0.45 | 92.3 | 67.5 | 4.24 | 82.8 | 63.5 |
| Mar. | 3.90 | 85.3 | 66.4 | 2.03 | 88.9 | 67.8 | 0.82 | " | " | 1.44 | " | " | 0.55 | 91.8 | 68.9 | 2.71 | | 64.4 |
| Apr. | 2.84 | 79.7 | 61.2 | 2.58 | 84.2 | 61.7 | 2.38 | " | " | 1.63 | " | " | 1.48 | 84.9 | 62.4 | 2.54 | | 60.6 |
| May | 0.98 | 78.3 | 54.7 | 0.24 | | | 0.74 | " | " | 0.93 | " | " | 1.12 | 82.2 | 54.7 | 1.36 | | 56.7 |
| June | 0.76 | 71.6 | 52.5 | 0.43 | 76.6 | 51.3 | 0.24 | " | " | Nil | " | " | 0.61 | 77.5 | 50.2 | 1.65 | | 54.7 |

Chloroquine and Daraprim, based on the age of the person.

(b) Residual Spraying.

(i) Winter Conditions.

On the 20th June 1960 a flit-catch (space spray) of two huts at the Umfula Planters sugar farm produced 80 A. gambiae per hut. On the 28th of June 1960, an average of 60 A. gambiae were found in the same huts.

The following temperatures were recorded at the Wisselrode climatic station about 2 miles from this farm, during the month of June -

| Month | Absolute Maximum | Mean Maximum | Absolute Minimum | Mean Minimum |
|---|---|---|---|---|
| June 1960 | 86.0°F | 78.4°F | 33.4°F | 43.7°F |

At this stage it was obvious that the A. gambiae focus on this farm was going to remain active throughout the winter.

As a result of this observation all African quarters on the farms and crown land situated along the southern bank of the Usutu River had been treated with B.H.C. 10%. Spraying commenced on the 30th June.

By means of space-spraying surveys, it was found that A. gambiae, although in smaller numbers, namely 41 per 51 huts tested, were also present in human habitation in the Nyetan native area, north of the Usutu.

As early summer conditions favoured the establishment of the vector, it was decided to spray the entire area north of the Usutu River, up to the Stegi-Manzini road in the north, the Lebombo mountain on the east, and the Mtindekwa River on the west. This work was completed at the end of August.

The following number of huts were sprayed -

| | |
|---|---|
| Big Bend Farms | 985 |
| Stegi Bushveld | 3,200 |
| | 4,185 huts |

(ii) Summer Conditions.

On the recommendation of the World Health Organisation, D.D.T 75% was used to spray our cordon area which extends from Gollel in the south to Border Gate in the north.

Spray operations were started at Ubombo Ranches on the 8th November 1960 and were extended to the surrounding farms and Native areas on the 21st. The work was completed during the first week of January 1961 .

A total number of 17,352 huts were treated.

/Surveillance ......

## 4. SURVEILLANCE.

Active surveillance was continued throughout the area.

Our staff was constantly engaged in -

(a) Routine taking of bloodslides,
(b) Locating and treating all immigrants from other malarious areas,
(c) Treating indigenous suspected malaria cases,
(d) Entomological investigations, collecting mosquito specimens by space spraying and detecting likely vector breeding foci.

### SUMMARY OF SURVEILLANCE WORK DONE.

| | |
|---|---|
| (a) Total number of slides taken | 17,894 |
| (b) Total number of immigrants treated | 1,654 |
| (c) Total number of indigenous "malaria-suspects" | 808 |
| (d) Total number of visits to African kraals | 36,432 |
| (e) Total number of huts space-sprayed | 17,013, |

(f) Adult mosquitos collected by pyrethrum space spraying and submitted for identification -

| | |
|---|---|
| A. gambiae | 225 |
| A. pretoriensis | 4 |
| A. marshalli | 3 |
| A. rufipes | 10 |
| A. demeilloni | 10 |
| A. funestus group | 14 |
| A. squamosus | 7 |
| A. coustani | 2 |
| A. maculipalpis | 2 |
| A. cinereus | 2. |

Anopheline Larvae Identified

| | |
|---|---|
| A. gambiae | 328 |
| A. pretoriensis | 671 |
| A. marshalli | 1 |
| A. rufipes | 26 |
| A. demeilloni | 10 |
| A. funestus (type) | 21 |
| A. squamosus | 11 |
| A. coustani | 54 |
| A. maculipalpis | 78 |
| A. cinereus | 1 |
| A. nili | 1 |
| A. longipalpis | 1 |
| A. natalensis | 1 |

## 5. ENTOMOLOGY.

During the period 24th April 1960 - 9th June 1960 an entomologist from W.H.O. (J. Clarke) conducted a survey at the Big Bend area, with the object of assessing the behaviour of A. gambiae in relation to an outbreak of malaria experienced at that time. By means of man and animal baited nets he found that out of 226 mosquitos precipitin-tested, 20% fed on man and 79% fed on animal (bovine).

/This host .....

This "host-preference" test was then repeated by our own staff during November and December 1960. Out of 571 mosquitos tested we found that -

3.6% fed on man and
94.9% fed on animal (bovine).

(See Table C on p.24).

The World Health Organisation Entomologist, Dr. R.O. Darwish worked under the same conditions during February/March 1961 and found that out of 209 A. gambiae tested 100% fed on animals.

## Entomological Observations at the Msimpofu River in the Sipofaneni Area.

In the Msimpofu River with its variations of puddled sand beds and rock pools, particularly over the lower section for about five miles from its junction with the Great Usutu River, A. gambiae larvae can normally be found throughout the year. This mosquito has been completely exophilic and zoophilic in this area ever since spraying was stopped some six years ago.

However, during the malaria outbreak at the end of the 1960 season, we found a negligible number of A. gambiae in huts along this river and we later had four fresh infections here. The area was then included in our drug campaign area. This was the first time that A. gambiae had appeared in these huts since residual spraying was stopped some 6 years ago.

The mosquitos collected by space spraying of huts at the end of January 1960 showed a tendency towards antropophilic behaviour. On the contrary, however, mosquitos collected by baited nets showed a 100% preference to animal blood. Unfortunately, this survey could not be continued over a longer period and the number of mosquitos collected was not adequate for research purposes. This area needs to be carefully watched in future.

## RESULTS OF OBSERVATIONS AT MSIMPOFU RIVER

| Date & Method of Collecting | A. GAMBIAE | | | | | | Other Anopheline Species found |
|---|---|---|---|---|---|---|---|
| | Total No. Collected | No. tested | Bloodfed Results | | | | |
| | | | Man | Ox | Man/Ox | Neg. | |
| 31.1.61 - Space-spray of 20 huts | 22 | 12 | 1 | 2 | - | 9 | Nil |
| 3.2.61 - Space-spray of 10 huts | 4 | 3 | 2 | 1 | - | 1 | Nil |
| 2.2.61 - Man baited trap-net | Nil | - | - | - | - | - | 3 A.coustani<br>1 A.pretoriensis |
| 3.2.61 - Man & calf baited trap-net | 34 | 30 | - | 29 | - | 1 | 8 A.coustani<br>3 A.pretoriensis<br>1 A.gambiae male |

/World .......

TABLE C.

## HOST PREFERENCE TESTS.

Results of Precipitin Tests of Bloodfed A. gambiae mosquitoes carried out during period 31.10.60-15.12.60 at Big Bend

| Date | Baited Net (Outside) Man Only | | | | | Baited Net Man and Ox | | | | | On Man Sleeping Outside | | | | | On Man Inside Hut | | | | | Hand Catch in Hut | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Exam. | Man | Ox | M/Ox | Neg. | Total Exam. | Man | Ox | M/Ox | Neg. | Total Exam. | Man | Ox | M/Ox | Neg. | Total Exam. | Man | Ox | M/Ox | Neg. | Total Exam. | Man | M/Ox | Neg. |
| 2.11.60 | 19 | 19 | - | - | - | 25 | - | 25 | - | - | 10 | 10 | - | - | - | - | - | - | - | - | 1 | 1 | - | - |
| 3.11.60 | 17 | 17 | - | - | - | 49 | 1 | 46 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4.11.60 | - | - | - | - | - | 24 | 1 | 23 | - | - | 19 | 17 | 2 | - | - | - | - | - | - | - | - | - | - | - |
| 5.11.60 | 3 | 3 | - | - | - | 82 | 6 | 76 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10.11.60 | - | - | - | - | - | 11 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11.11.60 | - | - | - | - | - | 89 | 8 | 78 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11.11.60 | 3 | 3 | - | - | - | 31 | 4 | 27 | - | - | 14 | 12 | - | - | 2 | 11 | 11 | - | - | - | - | - | - | - |
| 21.11.60 | Huts in area sprayed with D.D.T. | | | | | | | | | | | | | | | | | | | | | | | |
| 7.12.60 | Not used | | | | | 39 | - | 38 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8.12.60 | " " | | | | | 66 | - | 65 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 9.12.60 | " " | | | | | 19 | - | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 15.12.60 | " " | | | | | 80 | 1 | 79 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 16.12.60 | " " | | | | | 56 | - | 53 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TOTALS | 42 | 42 | - | - | - | 571 | 21 | 540 | 9 | 1 | 43 | 39 | 2 | - | 2 | 11 | 11 | - | - | - | 1 | 1 | - | - |
| % | | 100 | | | | | 3.6 | 94.9 | 1.5 | | | 95.4 | 4.6 | | | | 100 | | | | | 100 | | |

World Health Organisation Entomologist Dr. R. O. Darwish arrived in the territory on 6th February 1961 and completed his survey on 20th April 1961. His activities were also mostly centred on the "Umfula Planters" sugar farm, south of Big Bend, where he used man-and-animal-baited trap-nets and also window cages on certain huts, during the survey. All equipment used had been made locally.

As a result of certain observations on the behaviour of mosquitos, collected by means of the window-traps-cages, the W.H.O recommended that Swaziland revert back to B.H.C. in preference to D.D.T., for their residual spraying during the 1961-1962 season.

World Health Organisation has not yet reported on the work done by this entomologist but we have a copy of the precipitin tests made on blood-fed mosquitos, also extracts of certain of his observations during discussion at a gathering of W.H.O entomologists at Lourenco Marques during April. This meeting was also attended by a representative from the Health Office.

A summary of salient points made by Dr. Darwish at Lourenco Marques are detailed as follows -

(i) Observations at Umfula Planters, three months after the huts had been treated with D.D.T 75% applied at 2 - 3 gm/sq. meter technical product -

(a) A. gambiae, fed and unfed escaped from huts and were caught in exit window traps.

A total number of 477 A. gambiae, of which 56% were fed, were collected during 14 nights in 27 cage collections.

(b) A. gambiae was feeding inside huts on man. Out of 61 A. gambiae collected from a man baited net inside a hut, previously treated with D.D.T., during 7 nights 63.9% were fed.

(c) A. gambiae was feeding on human outside. A total number of 407 were collected from a man baited net.

(d) A. gambiae was feeding on cattle. 1474 mosquitos were collected from an animal baited trap in 7 nights.

From the above observations, it appeared that A. gambiae in the Umfula Planters area would feed indiscriminately on man or animal, outside or inside, depending on the availability of the host.

(ii) Observations at Nkambeni, Balegane area, approximately 90 miles north of the Big Bend area, where B.H.C. spraying was discontinued in 1957.

(a) A. gambiae breeding was localised and its distribution patchy.

(b) By baited trapnets it was found that the adult population was low in spite of favourable breeding places nearby in which A. gambiae larvae were found.

/(c) .......

(c) A. gambiae entered an animal-baited net outside 13 A. gambiae on 14.2.61 and 11 A. gambiae on 15.2.61.

(d) 8 A. gambiae adults were found resting at a cattle kraal on two nights 15th and 16th February.

(e) During 3 nights 4 A. gambiae were collected from animal baited net and 7 A. gambiae found in pit shelter.

(f) No A. gambiae were found by space spraying of 114 huts in the same area.

(g) Window traps gave negative results.

In contrast to the Big Bend area, it is clear at Balegane that the exophilic and zoophilic position had not changed since the observation of the World Health Organization team in 1958.

Results of precipitin tests on bloodfed mosquitos found at Umfula Planters farm, Big Bend, during February and March 1961 will be found in Table D, on p.27

The following points of interest emanate from the above results.

(a) One hundred percent of the A. gambiae collected in the man and animal-baited trapnet showed a preference to animal blood.

(b) From the man-baited nets it was quite evident that a large percentage of mosquitos would feed on man in the absence of animal.

(c) Figures of total collections made are not available, but it would appear that the numbers of mosquitos which entered the man-net outside were considerably less than the A. gambiae which entered the animal net, which was situated about 10 paces away.

(d) From the "man-net" inside the hut and also from the exit window cages it was quite obvious that we were dealing with an Anthropophilic/endophilic A. gambiae.

(e) Secondary vectors.

Specimens of A. coustani, A. maculipalpis, A.rufipes and A. pretoriensis were included in the precipitin tests in order to determine their feeding habits andthereby assess their value as secondary vectors.

Although small numbers were tested it nevertheless indicated, during this survey, that A. coustani was more prone to human blood in the man-net outside than A. gambiae and slightly less so in the animal + man net. Adults of this group of mosquitos were usually considered to be zoophilic and of no importance as vectors of malaria. Dr. de Meillon is of the opinion, however, that the coustani group has not conclusively been proved to be non-vectors ('Anophelines of the Ethiopean Regions'). In Swaziland this mosquito is a "biter of repute" and more intensive work on the bionomics of this mosquito should be of interest.

/Man .......

TABLE D. RESULTS OF PRECIPITIN TESTS ON BLOODFED MOSQUITOES COLLECTED AT BIG BEND (UMFULA PLANTERS) : MARCH 1961

AREA TREATED WITH BHC ON 28.6.60 and DDT ON 21.11.60

| Species | Man and Ox baited Trap-Net | | | | | Man baited trap-net outside | | | | | Man baited net inside hut | | | | | Exit window trap on hut | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Exam. | Man | Ox | M/OX | Neg. | Total Exam. | Man | Ox | M/Ox | Neg. | Total Exam. | Man | Ox | M/Ox | Neg. | Total Exam. | Man | Ox | M/Ox | Neg. |
| A. gambiae | 209 | - | 202 | - | 8 | 74 | 40 | 27 | 2 | 5 | 36 | 27 | 6 | 1 | 2 | 35 | 31 | 2 | 2 | - |
| A. coustani | 51 | 9 | 40 | - | 2 | 32 | 22 | 6 | 1 | 3 | 8 | 8 | - | - | - | - | - | - | - | - |
| A. malculipalpis | 16 | - | 11 | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A. rufipes | - | - | - | - | - | 1 | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| A. pretoriensis | - | - | - | - | - | 3 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 | - | - | - | 1 |

## MAN AND CALF NET

### DETAILS OF ALL SPECIES FOUND IN NET

| Date | A.gambiae |  |  | A.maculipalpis | A.marshalli | A.squamosus | A.rufipes | A.coustani | A.pretoriensis | A.cinereus | A.funestus gr. | A.pharoensis | A.demeilloni | Unidentified |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Fed | Unfed | Total |  |  |  |  |  |  |  |  |  |  |  |
| 7.12.60 | 76 | 5 | 65 | 169 | 1 | 16 | 10 | 9 | 17 | - | 1 | - | - | - |
| 8.12.60 | 62 | 2 | 80 | 208 | - | 2 | 19 | 2 | 25 | 7 | - | - | - | - |
| 18.12.60 | 76.1 | Nil | 76 | 177 | - | - | - | - | 12 | - | - | - | - | - |
| 15.12.60 | 131 | 10 | 141 | 140 | - | - | 2 | - | 5 | - | - | 2 | - | - |
| 21.12.60 | 35 | - | 35 | 13 | 37 | 15 | 3 | 15 | 18 | 2 | - | - | 10 | 2 |

## MAN NET

### DETAILS OF ALL SPECIES ENTERING MAN-BAITED NET.

|  | A.gambiae |  |  | A.maculipalpis | A.marshalli | A.squamosus | A.rufipes | A.coustani | A.pretoriensis | A.cinereus | A.funestus gr. | A.pharoensis | A.demeilloni |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Fed | Unfed | Total |  |  |  |  |  |  |  |  |  |  |
| 13.12.69 | - | 4 | 4 | 16 | - | - | 2 | - | 1 | - | - | 1 | - |
| 21.6.61 | - | - | 10 | - | 2 | 1 | - | 1 | - | - | - | - | - |
| 22.6.61 | 3 | 3 | 6 | - | 1 | - | - | 3 | - | - | - | - | - |
| 23.6.61 | - | 1 | 1 | - | - | - | - | - | - | - | - | - | - |
| 27.6.61 |  |  | Cattle removed from farm |  |  |  |  |  |  |  |  |  |  |
| 29.6.61 | 35 | 8 | 43 | 8 | 17 | - | 1 | 4 | 6 | 1 | - | - | 3 |

## CALF NET

### DETAILS OF ALL SPECIES ENTERING CALF-BAITED NET.

|  | A.gambiae |  |  | A.maculipalpis | A.marshalli | A.squamosus | A.rufipes | A.coustani | A.pretoriensis | A.cinereus | A.funestus gr. | A.pharoensis | A.demeilloni |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Fed | Unfed | Total |  |  |  |  |  |  |  |  |  |  |
| 22.6.61 | 44 | - | 44 | 22 | 51 | 10 | 7 | 19 | 20 | - | 2 | - | 10 |
| 23.6.61 | 91 | - | 91 | 65 | 97 | 5 | 4 | 12 | 20 | 11 | - | - | 24 |

## SURVEY OF A. GAMBIAE ENTERING AND LEAVING D.D.T AND B.H.C TREATED HUTS.

Window traps were used to assess the reactions of A. gambiae leaving certain huts which had been treated with D.D.T and B.H.C.

/The ....

The tests were made in 4 series namely -

1. 5 huts for 1 day before treatment 24.4.61
2. 5 huts for 5 days immediately after treatment, commencing on 25.4.61.
3. 9 huts for 4 days commencing on 2.5.61 (6 days after treatment).
4. 9 huts for 4 days commencing on 20.6.61 (55 days after treatment).

BEFORE TREATMENT.

| | TOTAL NO. A. GAMBIAE COLLECTED. | % FED | % UNFED |
|---|---|---|---|
| 1. | 171 | 31 | 69 |

| | B.H.C. TREATED HUTS | | | | D.D.T. TREATED HUTS | | | |
|---|---|---|---|---|---|---|---|---|
| | A.gambiae collected | % Fed | % Unfed | Survival | A.gambiae collected | % Fed | % Unfed | Survival |
| 2. | 152 | 8.6 | 91.4 | Nil | 56 | 1.8 | 98.2 | 1 for<br>7 hours |
| 3. | 343 | 18.4 | 81.6 | 1-12 hrs.<br>2-10 "<br>1-18 " | 94 | 9.6 | 90.4 | 1-6 hrs.<br>1-10 " |
| 4. | 109 | 21.1 | 86 | 2-48 "<br>19-24 "<br>2-12 "<br>5-9 "<br>2-8 "<br>2-6 "<br>4-4 " | 7 | Nil | 100 | 2-5 "<br>2-5 " |

It appears from these results that the residual effect of B.H.C was much less than that of D.D.T after 2 months. 10% of the A.gambiae collected in the cages from B.H.C treated huts survived for 24 hours after 2 months.

It would, however, be necessary to spread these tests over a longer period using a larger number of huts, before conclusive results could be arrived at.

G.J. van Eeden
HEALTH INSPECTOR.

BILHARZIA Bilharzia continues to be a worrying problem in the territory and there does not appear to be any immediate answer to it. From the literature it would seem that treatment of cases is not very satisfactory. The drugs produced thus far may effect cures in a fairly high percentage of S.haematobium infections but S.mansoni continues to be difficult to cure. Even if cures are effected, the problem of re-infection is ever present and until such time as we are able to prevent re-infection by the use of a suitable molluscicide or by other means, there does not seem to be any point in attempting any form of mass treatment.

In areas where the source of infection is limited it may be possible to eliminate the disease by combining active therapeutic measures and snail control measures. An attempt is being made to eliminate the disease at Ponjwana where the only source of infection is a large dam. The results of treatment have proved disappointing but it is proposed to repeat the treatment until all the scholars are disease free. The dam is being treated with copper sulphate in high dosage to kill the snails. If this pilot project proves to be successful there are other areas that can be dealt with in a similar way.

The Bilharzia survey of the territory has been completed. The following table shows the prevalence of the disease in the various parts of the territory. The middle and low veld areas are highly endemic for S.haematobium, while S.mansoni is confined to the lowveld. It is interesting to note that it is on the irrigation schemes that the prevalence of S.mansoni is highest.

INCIDENCE OF BILHARZIA IN NON-EUROPEAN CHILDREN IN SWAZILAND
1957-61

| | S.HAEMATOBIUM | | | S.MANSONI | | |
|---|---|---|---|---|---|---|
| | No.exam. | No.+ve | %+ve | No.exam. | No.+ve | % +ve |
| Big Bend | 113 | 80 | 70.8 | 108 | 16 | 14.8 |
| Bremersdorp | 300 | 172 | 57.3 | 164 | 2 | 1.2 |
| Dwaleni | 150 | 43 | 28.7 | 150 | 0 | - |
| Eranchi | 100 | 55 | 55.0 | 130 | 57 | 43.8 |
| Ezulwini | 85 | 26 | 30.6 | 85 | 0 | - |
| Forbes Reef | 100 | 1 | 1.0 | 100 | 0 | - |
| Golela | 77 | 13 | 17.0 | 77 | 3 | 4.0 |
| Hlatikulu | 150 | 18 | 12.0 | 150 | 0 | - |
| Hluti | 244 | 50 | 20.5 | 157 | 1 | 0.63 |
| Komati Valley | 100 | 7 | 7.0 | 100 | 3 | 3.0 |
| Kubuta | 72 | 23 | 32.0 | 71 | 0 | - |
| Lobomba | 128 | 62 | 47.0 | - | 0 | - |
| Lubuli | 61 | 38 | 62.3 | 61 | 2 | 3.3 |
| Mahamba | 120 | 6 | 5.0 | 120 | 0 | - |
| Malkerns | 150 | 31 | 20.7 | 150 | 0 | - |
| Mankaiana | 150 | 21 | 14.0 | 150 | 0 | - |
| Matapha | 446 | 189 | 42.4 | - | 0 | - |
| Mayiwane | 118 | 75 | 63.5 | 118 | 30 | 25.4 |
| Mbabane | 259 | 8 | 3.09 | 253 | 2 | 0.8 |
| Mbuluzi | 197 | 18 | 9.1 | 197 | 2 | 1.0 |
| Mhlotsheni | 170 | 29 | 17.0 | 167 | 0 | - |
| Mhlume | 159 | 84 | 53.0 | 159 | 34 | 21.4 |
| Mliba | 141 | 44 | 31.2 | 141 | 0 | - |
| Ngonini | 100 | 80 | 80.0 | 89 | 30 | 33.7 |
| Nomahasha | 257 | 90 | 35.0 | 257 | 7 | 2.72 |
| Peebles Block | 80 | 28 | 35.0 | 80 | 0 | - |
| Phonjwana | 89 | 36 | 40.5 | 87 | 0 | - |
| Piggs Peak | 130 | 19 | 14.6 | 130 | 5 | 3.8 |
| Sicunusa | 120 | 18 | 15.0 | 120 | 0 | - |
| Sinceni | 61 | 10 | 16.4 | 61 | 0 | - |
| Sipofaneni | 53 | 0 | 0 | 53 | 0 | - |
| Stegi | 337 | 90 | 26.7 | 83 | 1 | 1.2 |
| St. Phillips | 97 | 15 | 15.5 | 97 | 2 | 2.0 |
| Tambankulu | 79 | 29 | 36.7 | 79 | 24 | 30.4 |
| Usutu Forest | 116 | 10 | 8.6 | 113 | 0 | - |
| | 5,109 | 1,518 | 29.7 | 4,057 | 221 | 5.4 |

The Health Inspector's report on the activities of the Bilharzia unit follows:-

## ANNUAL REPORT : BILHARZIA INVESTIGATIONAL WORK : 1961

### 1. SNAIL CONTROL PILOT PROJECT, "THANDELIZWA" DISTRICT MANZINI - I.G. MORRISON ESQ.

An attempt was made to control snails in a stream approximately 2,000 yards long and its tributary approximately 1,000 yards long. The stream is situated close to Manzini just off the Stegi road and is a tributary of the White Umbuluzi River.

Molluscimciding was done by means of a saturated solution of $CuSO_4$ (100 lbs $Cu SO_4$ to 35 gallons of water) which was applied to the stream in sufficient quantities to give the water a distinct blue colour. Sulphation was started at the lowest point and applied evenly, gradually working up-stream.

The results were as follows:-

| MAIN STREAM. | | PHYS. | LYMNAEA. | REMARKS. |
|---|---|---|---|---|
| Preliminary survey | 11th July | 84 | 14 | 6 man hours of searching. |
| Sulphation | 12th " | | | 300 lbs. $CuSO_4$ used for sulphating ± 2,000 yards. |
| Re-survey | 13th July | 0 | 0 | 6 man hours of searching |
| " " | 29th Aug. | 0 | 0 | 6 " " " " " |
| " " | 2nd Nov. | 0 | 0 | 6 " " " " " |
| " " | 17th " | 0 | 0 | 6 " " " " " |
| " " | 18th Dec. | 0 | 0 | 8 " " " " " |
| " " | 19th " | 0 | 0 | 6 " " " " " |
| Sulphation | 20th " | 1 | 2 | 300 lbs. $CuSO_4$ used. |
| Re-survey | 21st " | 0 | 0 | 12 man hours searching |
| TRIBUTARY | | | | |
| Preliminary survey | 4th Oct. | 58 | 0 | 3 man hours searching |
| Sulphation | 4th " | | | ± 500 yards sulphated with 45 lbs. $CuSO_4$ |
| Re-survey | 5th " | 0 | 0 | ± 500 yards in 1½ man hours of searching |
| " " | 17th Nov. | 0 | 0 | ± 1,000 yards in 3 man hours of searching |
| " " | 18th " | 0 | 0 | ± 1,000 yards in 3 man hours of searching. |

OBSERVATIONS. (a) In the case of the main stream, after only one sulphation, a period of 23 weeks or 5 calendar months elapsed between eradication and the first time of finding snails with 6 weekly and even more frequent surveys in between. The snails found after the lapse of 5 months, viz. 1 Physopsis and 2 Lymnaea, were however mature snails which could have been missed with previous surveys and as a result it would be difficult to judge at what stage they could have been re-infected. Thus the requisite interval between sulphations could not be determined with any accuracy.

(b) It would appear that $CuSO_4$ in the strength applied is sufficient to render eggs sterile as no small snails appeared 6 weeks after sulphation and none of the 33 egg masses taken from the tributary after sulphation hatched in the laboratory.

/2. Bilharzia ....

## 2. BILHARZIA CONTROL PILOT PROJECT AT PHONJWANA.

(a) This area is situated in the bushveld just off the main road between Manzini and Sipofaneni approximately 7 miles from Sipofaneni.

(b) It was considered that this area was eminently suitable for a control project because , as a result of the survey here, 40% of the local school children were found to be infected with S. haematobium and a nearby dam the only source of infection for miles around.

(c) Consequently a snail survey was first carried out and as a result 219 Physopsis were found in 8 man hours of searching.

(d) Snail eradication was then attempted with $CuSO_4$ applied to the edges of the dam by means of a Knap-sack Sprayer. A saturated solution of 200 lbs. of $CuSO_4$ to 70 gallons of water was applied in sufficient quantities to give the water a distinct blue haze. This would have given an estimated concentration of 5 p.p.m if applied to the whole dam and not just the edges.

(e) Re-survey involving 8 man hours of searching as before proved that the $CuSO_4$ had been most effective as no live snails could be found.

(f) After a lapse of 7 weeks, although no snails could be found, $CuSO_4$ was again applied.

(g) Thereafter, regular surveys at 6 week intervals were conducted and it was only with the 4th survey that 5 Physopsis, 2 of which were shedding mammalian cercariae, were found.

(h) Molluscociding was carried out for the 3rd time.

(i) No snails were found 6 weeks later.

(j) Urine specimens from all the available school children were examined and "negatives" were twice repeated. The following are details of the results:-

| AGE GROUP. | NO. EXAMINED. | NO. +VE. | % +VE. |
|---|---|---|---|
| 0 - 10 | 77 | 33 | 42.8 |
| 11 - 20 | 181 | 82 | 45.3 |
| TOTALS | 258 | 115 | 44.6 |

(k) Subsequently 93 pupils were treated with "Nilodin" on the basis of 95 mgm per kilo of bodyweight, given in divided doses over a period of 3 days. This however resulted in only 31% apparent cures. Pupils complained of nausea and vomiting and may not have taken the evening dose at home.

(l) The same pupils with the exception of 3 who were not available, were then given a 5-day course of treatment. This time 48% apparant cures resulted. This represented an additional 25% of those who were still positive after the first treatment, that were now negative.

/(m) The following ...

(m) The following is an interesting observation in connection with the percentage of cures:-

No. of Pupils under 80 lbs; 46 No. cured; 16 = 34.8%
" " " over 80 lbs; 44 " " 27 = 61.4%

3. ECOLOGICAL SURVEYS: Snails were studied in their natural habitat in a dam and in a river.

The following observations were made:-

R.C. WEIR MZIMNENE RIVER, MANZINI.

| MONTH | WATER TEMP | RAINFALL | PHYSOPSIS (4 MAN HOURS OF SEARCHING) | | | TOTAL | BREEDING. |
|---|---|---|---|---|---|---|---|
| | oF | in MM | Less than 3 m.m in length | more than 3 m.m in length | more than 6 m.m in length | | No. of egg masses in 4 hours. |
| May | 66 | - | 1 | 28 | 120 | 149 | 28 |
| June | 60 | 14.5 | 0 | 44 | 146 | 190 | 30 |
| July | 60 | 7.1 | 0 | 10 | 95 | 105 | 33 |
| Aug. | 57 | 15.8 | 0 | 0 | 106 | 106 | 20 |
| Sept. | 73 | 8.4 | 0 | 0 | 65 | 65 | 80 |
| Oct. | 68 | 144.5 | 1 | 30 | 114 | 145 | 5 |
| Nov. | 75 | 140.1 | 0 | 0 | 46 | 46 | 55 |
| Dec. | 72 | 105.2 | 0 | 14 | 44 | 58 | 26 |

TUNG OILS DAM, MANZINI DISTRICT.

| MONTH | WATER TEMP | RAINFALL | BIOMPHALARIA (3 MAN HOURS OF SEARCHING) | | | TOTAL | BREEDING |
|---|---|---|---|---|---|---|---|
| | oF | in M.M | Less than 3 m.m in lengh | more than 3 m.m in length | more than 6 m.m in length. | | |
| May | 66 | - | 1 | 30 | 50 | 81 | Figures unreliable as Physopsis were also present. |
| June | 62 | 14.5 | 1 | 33 | 44 | 78 | |
| July | 61 | 7.1 | 1 | 10 | 95 | 106 | |
| Aug | 70 | 15.8 | 1 | 14 | 47 | 62 | |
| Sept. | 70 | 8.4 | 8 | 40 | 49 | 97 | |
| Oct. | 72 | 144.5 | 3 | 84 | 78 | 165 | |
| Nov. | 82 | 140.1 | 20 | 55 | 185 | 260 | |
| Dec. | 72 | 105.2 | 0 | 100 | 240 | 340 | |

These studies will be continued during next year as it is too early to draw definite conclusions at this stage.

4. BILHARZIA SURVEYS: The territorial survey was completed during the year. The following are particulars of the portion of this survey done during the year and other surveys conducted by special request:-

/ PLACE ..........................

| PLACE | SNAIL SURVEY Phys. | Biomph. | BILHARZIA INCIDENCE SURVEY S. HAEMATOBIUM No. Exam. | Percentage +ve Total | 0-10 yrs | 11-20 yrs | S. MANSONI No. Exam. | Percentage +ve Total | 0-10 yrs | 11-20 yrs |
|---|---|---|---|---|---|---|---|---|---|---|
| Mdutshane Govt. Experimental Station Irrig; Furrow; Main Canal; Dam; River | NF | NF | | | | | | | | |
| Tambankulu Estates | | | 79 | 36.7 | 34.8 | 50 | 79 | 30.4 | 33.3 | 10 |
| Umbuluzi Estates | | | 24 | 21 | 17.6 | 28.6 | 24 | 4.2 | 6 | 0 |
| Raleigh Fitkin Mem. Hospital, Manzini, Dam below Dr.D. Hynd's residence | NF | NF | | | | | | | | |
| Manzini Central School | | | 164 | 57.5 | 60 | 56 | 164 | 1.2 | 0 | 2.4 |
| "Killarney", Mpisi, Dist.Manzini - Herbst New Irrigation Dam | P | P | | | | | | | | |
| Nazarene School, Manzini | | | 136 | 66.6 | 53 | 60.3 | - | - | - | - |
| Ntondwane & Egebeni (W. of Ngwempisi/ Usutu R. Junction) | | | | | | | | | | |
| Ngwempisi River;Mzimene River + Side pools and Tributary | NF | NF | | | | | | | | |
| Ntondwane & Egebini Schools | | | 80 | 35 | 31.6 | 36.0 | 80 | 0 | 0 | 0 |
| Usutu Mission - Higher Primary School (Children ex Malkerns Area only) | | | 150 | 20.7 | 12.7 | 25.3 | 150 | 0 | 0 | 0 |
| Ngonini African School, Horo | | | 100 | 80 | 72 | 83.8 | - | - | - | - |
| Eranchi Central School | | | 169 | 59.2 | 47.5 | 69.7 | 168 | 45.7 | 45 | 45.4 |
| Eranchi-Children born & bred on estate | | | 66 | 34.8 | 27.5 | 46.1 | 64 | 18.7 | 5.3 | 38.5 |
| Mpofu; Pigg's Peak District - J. Gordon-Bennett | | | | | | | | | | |
| Pump House - Mpofu River | P+ | NF | | | | | | | | |
| Washing Place " " | P | P+ | | | | | | | | |
| Bathing Place - Gongodlwane River | P | P+ | | | | | | | | |

/Matapha

| PLACE | SNAIL SURVEY | | BILHARZIA INCIDENCE SURVEY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | S. HAEMATOBIUM | | | | S. MANSONI | | | |
| | | | | Percentage +ve | | | | Percentage +ve | | |
| | Phys. | Biomph. | No. Exam. | Total | 0-10 yrs | 11-20 yrs | No. Exam. | Total | 0-10 yrs | 11-20 yrs |
| Matapha School Dam | P+ | NF | | | | | | | | |
| Tubungu Estates, Manzini District | | | | | | | | | | |
| Spring for domestic supply | NF | NF | | | | | | | | |
| Adjoining pool | NF | NF | | | | | | | | |
| Irrigation Dam | P | 0 | | | | | European Schools done | | | |
| Sydney Williams Primary School, Manzini | | | 154 | 10 | 7.5 | 14.8 | | | | |
| Dominican Convent, Manzini | | | 122 | 4 | 6.7 | 1.3 | at request of School | | | |
| Malkerns Government School | | | 24 | 0 | 0 | 0 | | | | |
| Evelyn Baring School, Goedgegun | | | 331 | 5.4 | 3 | 6.6 | Board. | | | |
| GOEDGEGUN - New Town Dam | NF | NF | | | | | | | | |
| Agricultural Dam; Govt. Exp. Farm | NF | NF | | | | | | | | |
| Ngwempisi River, Mankaiana District | | | | | | | | | | |
| Bathing Place in Ngwempisi River | NF | NF | | | | | | | | |
| Side Pool of " " " | NF | NF | | | | | | | | |
| Tributary to " " " | NF | NF | | | | | | | | |
| Mahamba | NF | NF | | | | | | | | |

P = Present
NF = Not found
P+ = Present and shedding cercariae.

Phys. = B. Physopsis
Biomp. = Biomphalaria

/During .....

During the microscopic examination of stool specimens carried out during the above survey, the presence of other parasitic helminths was also noted and particulars of the 711 specimens which were examined were as follows:-

Ova of Ascaris Lumbricoides present in 5.5% of specimens examined
" " Taenia Saginata " " " 2.4% " " "
" " Trichuris Trichiura " " " 2.25% " " "
" " S, Mattheei " " " 1.1% " " "
" " Hymenolepis nana " " " 0.42% " " "
" " Enterobius vermicularis " " 0.28% " " "
" " Strongyloides spp " " 0.14% " " "

## 5. MISCELLANEOUS ACTIVITIES

(a) Snails from Ezulwini, Lobamba, Malkerns, Matapha, Sipofaneni, Big Bend, Lubuli, Hluti, Makonza, Kubuta and Tofus Causeway were sent to Potchefstroom University for Taxonomy. Results have not yet been obtained.

(b) It was decided to work out, in respect of 2 schools in Manzini, a "correction factor" for S. hameatobium by twice repeating the "negatives".

The results were as follows -

| | No.Examined | No.+ve | % +ve |
|---|---|---|---|
| 1st re-examination | 126 | 21 | 16.7 |
| 2nd re-examination | 104 | 2 | 1.9 |
| 1st & 2nd re-examination combined | 230 | 23 | 10.0 |
| New grand total | 300 | 195 | 65.0 |
| Old grand total | 300 | 172 | 57.3 |
| Difference between new and old | | | 8.4 |
| Correction factor = X 1.13 | | | |

As the re-examinations were done over a period varying from 8 - 22 days after the original examinations, the possibility of some of these children having developed the disease in the between periods cannot be excluded.

(c) EXPERIMENTS with salt (sodium chloride) as a molluscicide in the laboratory revealed as follows:-

It took a salt solution as strong as 5% to kill Physopsis in 1 hour. Normal saline i.e. a 0.9% solution killed snails only after 48 hours exposure.

The conclusion reached was that salt as a molluscicide would not be a practical proposition.

(d) In addition to survey specimens, 229 specimens of urine and 6 stools were examined in the laboratory.

D. M. ECKARD

HEALTH INSPECTOR.

/Typhoid ........

## TYPHOID FEVER.

The increasing number of typhoid fever cases reported is causing a considerable amount of concern. The number of cases reported from all sources has risen to 272 with 10 deaths. The figures for 1960 and 1959 were 191 with 14 deaths and 141 with 8 deaths respectively.

Epidemiological investigation has shown that mose cases were sporadic in distribution and that the source of infection is usually through the medium of flies combined with insanitary habits. Water sources and milk have not been incriminated in the transmission of the disease thus far, though there is always the possibility that water or milk may become polluted, with a resulting explosive epidemic of the disease.

Whenever it was considered necessary, for the prevention of spread of the disease, anti-typhoid innoculations were administered.

The following table shows the number of persons immunised-

T.A.B. Injections.

| | Ist Injection | 2nd Injection |
|---|---|---|
| Ubombo Ranch | 1367 | 560 |
| Mafuteni | 504 | 422 |
| Makungutsha | 140 | 157 |
| Mabona | 86 | 60 |
| Croydon | 65 | 31 |
| Total | 2162 | 1230 |

## MENINGITIS (CEREBRO-SPINAL FEVER)

During the year, 8 cases with 3 deaths were reported.

## SMALL-POX

No cases of small-pox were recorded.

A full-time vaccinator was taken on towards the latter part of the year and after being trained, he was sent out into the field to vaccinate the people, starting on our eastern border at Nomahasha and then proceeding to do the areas with large number of African labourers, viz. Swaziland Irrigation Scheme, Mhlume and Tambankulu Estates. The following table shows the number of people vaccinated at the various places -

| Date | Place | No. Vaccinated. |
|---|---|---|
| October | Tambankulu Estates | 791 |
| Oct-Nov. | Nomahasha | 2591 |
| Nov-Dec. | Swaziland Irrigation Scheme | 2262 |
| December | Mhlume | 2722 |
| | Total | 8366 |

/The vaccination .....

TABLE E.

## ADMINISTRATION OF ORAL POLIOMYELITIS VACCINE

| CENTRE | 1st Dose | 2nd Dose | 3rd Dose |
|---|---|---|---|
| Mbabane Hospital | 521 | 584 | 475 |
| St. Mark's High School | 206 | 207 | 211 |
| " " Junior " | 284 | 282 | 263 |
| Mbabane Central | 426 | 372 | 358 |
| S.A.G.M. Mbabane | 133 | 133 | 123 |
| Mater Dolorosa Mbabane | 231 | 88 | 77 |
| St. Francis " | 227 | 163 | 98 |
| Lutheran " | 32 | 26 | 14 |
| Fonteyn " | 57 | 62 | 59 |
| Msunduza Hall " | - | - | 8 |
| Sydney Williams, Manzini | 151 | 149 | 141 |
| Manzini Central | 489 | 282 | 234 |
| Little Flower, Manzini | 137 | 45 | 44 |
| Dominican Convent " | 80 | 84 | 74 |
| Nazarene " | 352 | 288 | 271 |
| Raleigh Fitkin Mem. Hospital | 134 | 139 | 113 |
| Methodist School, Manzini | 111 | 76 | 61 |
| Health Office, " | 401 | 369 | 272 |
| St. Theresa " | 277 | 234 | 215 |
| St. Michael's School " | 150 | 174 | 161 |
| Stegi European School | 81 | 81 | 78 |
| Good Shepherd Mission School | 12 | 24 | 23 |
| " " Hospital | 113 | 109 | 80 |
| Stegi Nazarene | 336 | 272 | 173 |
| Assembly of God, Stegi | 84 | 80 | 111 |
| Mhlambanyati | 365 | 308 | 279 |
| Dalcrue Estates, Malkerns | 40 | - | - |
| Government School " | 122 | 108 | 68 |
| Research Station, Malkerns | - | 88 | - |
| St. Christopher's " | 110 | 110 | 110 |
| Lobamba | 111 | 38 | 39 |
| Lobamba Store | - | - | 98 |
| Matsapa Teacher Training | 32 | 32 | 32 |
| " High School | 194 | 199 | 193 |
| " Practising School | 276 | 326 | 299 |
| Mbuluzi Girls School | 185 | 169 | 164 |
| Pigg's Peak | 115 | 86 | 83 |
| " " | 321 | 67 | 54 |
| " " Europeans | 38 | 104 | 87 |
| Swaziland Plantations | 235 | 94 | 14 |
| Pigg's Peak European School | 119 | 120 | 11 |
| " " Nazarene " | 72 | 62 | 63 |
| " " Rocklands | 135 | 118 | 147 |
| Peak Timbers | 15 | - | - |
| Pigg's Peak Central School | 165 | 154 | 147 |
| " " Patulite Factory | 76 | 58 | 38 |
| Horo | 16 | 4 | 3 |
| Ngonini School | 157 | 68 | - |
| Endigeni Primary School | 276 | 299 | 288 |
| " Secondary " | 76 | 75 | 66 |
| Tshaneni Government School | 96 | 101 | 97 |
| Mhlume Clinic | 465 | 347 | 188 |
| S.I.S. Clinic | 276 | 189 | 93 |
| Tambankulu Estates | 179 | 176 | 174 |
| Big Bend School | 19 | 24 | 27 |
| " " Clinic | 85 | 154 | 145 |
| Gollel | 60 | 17 | 47 |
| Franson Mem. Bible School | 259 | 169 | 142 |
| Mhlotsheni Clinic | 84 | 115 | 78 |
| Hluti Clinic | 68 | 66 | 72 |
| Florence Mission Hluti | 174 | 169 | 189 |
| Our Lady of Sorrows, Hluti | 238 | 256 | 255 |
| Goedgegun Central | 250 | 167 | 204 |
| " Clinic | 146 | 107 | 116 |
| Christ the King Hlatikulu | 266 | 73 | 51 |
| Central School Hlatikulu | 251 | 147 | 122 |
| Hospital Hlatikulu | 358 | 359 | 347 |
| Evelyn Baring School | 174 | 167 | 282 |
| Mt. Hermon School | 174 | 116 | 105 |
| Mankaiana Hospital | 123 | 368 | 274 |
| Salesian High School, Manzini | 88 | 91 | 92 |
| St. Hoseph's School | 327 | - | - |
| Mahamba Mission | 427 | 403 | 294 |
| Total | 12,865 | 10,601 | 9,414 |

TOTAL DOSES ADMINISTERED 32,880

The vaccination programme for the future will consist of systematic tours through each district. Vaccination centres will be arranged with the District Commissioners concerned and the vaccinator will endeavour to cover each area paying special attention to immunising the unvaccinated portion of the population.

### CHICKEN-POX, MEASLES AND WHOOPING COUGH.

These diseases are always present, the numbers reported each year varying according to the extent of the minor epidemics that occur from time to time. No deaths from measles or its complications were reported, though there were six deaths from whooping cough.

### POLIOMYELITIS

Four cases with one death were reported during the year. During the year oral poliomyelitis vaccine was administered to the susceptible age groups in the urban areas, boarding schools and areas with concentrations of population. The vaccine was administered in 3 doses with an interval of 5 weeks between doses.

Table E gives a record of the administration at the various centres visited. (see p.38)

### DIPHTHERIA

Six cases with two deaths were reported. The cases were sporadic in distribution and consequently no specific control measures were required.

## II. SANITATION

Sewage Disposal. The sewage disposal works at Mbabane continues to work satisfactorily and many more premises have been linked to the system. The sewage lagoons or oxidation ponds are proving to be highly satisfactory and the final effluent entering the Mbabane River is not considered to be causing a degree of pollution that might be dangerous; in fact, samples of water taken above the inlet have proved to be far worse bacteriologically than samples taken of the actual effluent from the oxidation ponds.

With the rapid growth of Manzini industrially, and also on account of the fact that the soil in most parts of the township is not suitable for the satisfactory disposal of liquid wastes, it is becoming increasingly evident that a sewage disposal works should be considered in the very near future. Some of the new premises in Manzini have constructed conservancy tanks and the effluent from such premises is removed by the local vacuum tanker and disposed of by irrigation methods at the night soil disposal site. The method of disposal has been satisfactory, not giving rise to any nuisance.

In all townships, the "bucket system" is still in use, with varying degress though there have been many conversions to the water borne system. It is hoped that the pail closet

/system .....

system will gradually be replaced by water borne system throughout the territory.

Many large institutions throughout the territory use pit privies which are most unsatisfactory and a definite danger to the health of the community. Such institutions should be induced to provide more modern forms of excreta disposal.

The Aqua Privy system is in use in many places in the territory. Where the system has been properly constructed and supervised, the method has proved to be highly satisfactory, but on the other hand, where structure is faulty or supervision lacking, very poor sanitary conditions have resulted.

Refuse Removal. In Mbabane and Manzini proper enclosed refuse removal vehicles have been provided and the service has been satisfactory on the whole.

In some areas, the disposal of refuse leaves much to be desired. After collection by the refuse removal vehicles the refuse is dumped at selected sites for reclamation purposes or else it is dumped into open pits. The refuse is not covered and consequently it becomes attractive to flies and through decomposition, nuisances are frequently produced. All refuse dumped, should be adequately covered with earth to prevent nuisance and fly attraction. In the absence of earth covering, the principle of the sanitary disposal of refuse is completely lost.

Water Supplies. Mbabane and Manzini have excellent systems and are well supplied with pure water. The new plant on the Little Usutu River was opened during the year and the supply of water to Manzini is adequate at present, though with the rapid extension of the town in the industrial field, it may be necessary tp provide extensions to the plant to meet these needs in the near future. The plant has been designed to enable such extensions to take place.

Water supplies in the smaller townships have been generally improved during the year, but greater improvements are considered necessary in some of these towns. Hlatikulu, for instance, has no filtration plant and it has only comparatively recently been provided with a chlorination system. All townships should be provided with completely safe water supplies and this can only be done by installing the proper filtration and treating plant.

Water supplies have been bacteriologically tested throughout the year. The tests have been very useful in indicating defects in the filtration and purification systems of some plants. Though it is desirable that frequent tests should be made of all water supplies, this has not been possible due to staff shortage.

The following table shows the number of samples taken and the centres from which they were taken.

/Water .....

6

## 1961 - WATER SAMPLES COLLECTED FOR BACTERIOLOGICAL EXAMINATION

| | January - March | | | April - June | | | July - September | | | October - December | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Urban | Date | a. | b. | Date | a. | b. | Date | a. | b. | Date | a. | b. |
| Manzini | 14.2.61 | 6 | - | 16.5.61 | 6 | - | 15.8.61 | 6 | - | 14.11.61 | 2 | - |
| Mbabane | 22.2.61 | 6 | - | 6.6.61 | 6 | - | | | | 9.10.61 | 6 | - |
| **Stegi** | 27.3.61 | No results | | 11.4.61 | 6 | 3 | 12.9,61 | 6 | 1 | | | |
| Hlatikulu | 7.3.61 | 2 | 2 | 14.6.61 | 2 | | | | | 6.12.61 | 2 | - |
| Goedgegun | 7.3.61 | 4 | 1 | 14.6.61 | 3 | | | | | 6.12.61 | 4 | 2 |
| Mathapa | | | | | | | | | | 14.11.61 | 1 | - |
| Malkerns | | | | 26.6.61 | 2 | | | | | | | |
| Mankaiana | | | | 26.6.61 | 4 | | | | | | | |
| Rural | | | | | | | | | | | | |
| Pigg's Peak | | | | 25.4.61 | 5 | - | | | | | | |
| Mhlume | | | | 30.5.61 | 3 | 3 | 3.7.61 | 6 | - | | | |
| S.I.S | | | | 30.5.61 | 3 | - | | | | | | |
| Paramount Chief's House, Goedgegun | | | | 14.6.61 | 1 | | | | | | | |
| Mhlambanyati-Bunya | | | | | | | 19.7.61 | 5 | - | 14.11.61 | 2 | 2 |
| Mdutshane | | | | | | | | | | 12.12.61 | 2 | 1 |
| Bunya | | | | | | | | | | 12.12.61 | 2 | - |
| Big Bend | | | | | | | | | | 28.11.61 | 5 | - |

a = No. of samples collected - b = No. unsatisfactory

## III. RURAL SANITATION

Rural sanitation is extremely poor. Generally speaking no attempt is made to dispose of excremental wastes in a satisfactory manner, promiscuous defeacation and urination are common practices. Flies breed in abundance in the damp manure of the cattle kraals and water supplies are from the nearest stream or ditch. Many of the kraals are well kept and clean but with the insanitary practices referred to above, it is extremely difficult to prevent the spread of diseases caused by the alvine discharges, which appear to be on the increase in the territory. The only way to improve these conditions would be by public health education which should be taught in schools, and taken to the people by a staff of health visitors.

## IV. HOUSING

A considerable improvement has been noted in the housing provided for African labourers on the larger irrigation projects. However, some of the large employers of labour still have large numbers of unsuitable shacks made of grass or paper bags, with no sanitary facilities or water supplies. In spite of promises that these would be speedily removed as proper housing became available, they still exist in too large numbers.

## V. BUILDING PLANS.

The following list shows the number of building plans submitted for scrutiny at the Health Office during the year.

| | |
|---|---|
| Mbabane | 58 |
| Manzini | 45 |
| Stegi | 10 |
| Goedgegun | 4 |
| Other | 4 |
| Total | 121 |

## VI. FOOD IN RELATION TO DISEASE.

(i) TRADE PREMISES. Regular routine inspections of the trade premises were carried out in the urban areas. Similar inspections though on a lesser scale were carried out in the rural areas. The following unsound articles were seized and destroyed:-

7 x 1 lb. Youngberries in Syrup
1 x 1 lb. Canned Pears
50 x 1 lb. 13 oz. Beetroot Slices

(ii) ABATTOIRS. Meat inspection at the Government abattoirs leaves much to be desired, only on account of staff shortages. The Manzini abattoir is the only one under daily control of the Health Inspector. Mbabane is visited at least once a week, whereas the other abattoirs are visited at monthly intervals. Abattoir attendants have been given a short course on meat inspection and are required to call in some person of authority if they find anything unsatisfactory during the course of their inspections. However, it is very evident that they are generally unreliable as some abattoirs have had no condemnations of carcases for measles throughout the year - a fact very difficult to believe in the light of knowledge gained at the Manzini abattoir. The position is unsatisfactory, but there is no solution unless trained staff can be provided for each abattoir.

/The following ....

The following table shows the number of animals slaughtered at the Mbabane and Manzini abattoirs. Figures for the other abattoirs are not available.

| | Animals Slaughtered | | | Frozen | | | Cooked | | | Condemned | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | P | S | B | P | S | B | P | S | B | P | S |
| Mbabane | 1329 | 366 | 860 | 6 | - | - | 4 | - | - | - | 15 | - |
| Manzini | 2082 | 638 | 1075 | 52 | - | - | 15 | - | - | 15 | 6 | 3 |

(iii) BUTCHERIES. The butcheries in the urban areas are regularly inspected by the Health Inspector. Generally the butcheries are conducted on hygienic lines, but there have been occasions where some minor unsatisfactory matters have had to be brought to the notice of the butchers concerned.

(iv) RURAL BUTCHERIES. There are many of these scattered throughout the territory, the vast majority of them being African-owned. Most of them are operated on most unhygienic lines - unsatisfactory buildings, lack of flyscreening, lack of water, lack of clean handling, insanitary methods of slaughtering and skinning etc. Little or no supervision by the Health Department is at present possible.

(v) MILK SUPPLIES. In the larger towns supplies are generally satisfactory, the major portion coming from registered Dairies under the supervision of the Dairy Department. Some consumers are still obtaining their milk from uregistered sources. No diseases attributable to milk have occurred in the towns, during the past years. Although this is considered a good sign it does not necessarly mean that all supplies are good or that supervision of supplies can be relaxed in any way.

## VII. PUBLIC HEALTH EDUCATION.

Numbers of the Health Office staff have given lectures and demonstrations on various subjects in the Public Health field, including talks on Kwashiorkor, Smallpox and Enteric Fever at District Team meetings at Gundwini and Nkambeni, talks on Malaria, Typhoid, Infantile Gastro-enteritis, Smallpox, flies and village hygiene to agricultural students at Mdutshane Experimental Farm, and a lecture demonstration on bilharziasis to the probationer nurses at Raleigh Fitkin Memorial Hospital. During immunization campaigns for the prevention of spread of Typhoid Fever, the people are told of the methods of spread of the disease and how it can be prevented.

## VIII. PARASITOLOGY.

### (i) Tape Worm Treatment.

The scheme of treating all tape worm sufferers, in an attempt to reduce the incidence of measles in meat, which was started in 1957, appears to be giving good results as the following table will show -

/Manzini ......

## MANZINI ABATTOIR

| Year | % Carcases having C. Bovis |
|---|---|
| 1953 | 18 |
| 1954 | 10 |
| 1955 | 10 |
| 1956 | 12 |
| 1957 | 8 |
| 1958 | 7 |
| 1959 | 5 |
| 1960 | 4.3 |
| 1961 | 3.9 |

Only the figures for the Manzini abattoir are given as these are considered to be reliable.

The following table shows the number of persons treated during the year with the drug Dichlorophen -

| | |
|---|---|
| By Malaria Assistants and Health Office staff | 3,504 |
| At Government Hospitals and Clinics | 1,855 |
| | 5,359 |

The total number of persons treated since the start of the campaign in 1957 is 36,445.

(ii) Bed Bugs.

During the course of the year many applications for deverminising were received. Bed bugs are the main cause for complaint. When applications were first received, the insecticides D.D.T and B.H.C were used to eliminate the parasites. It soon became apparent, however, that these two insecticides had no effect and resistance tests proved that the parasites were completely resistant to them. Diazinon was substituted for the two insecticides used originally and the results obtained were good. Malathion was substituted later during the year as it was found to be more effective and cheaper.

Spraying is done on request at a cost of 15 cents per room or hut.

Requests for such deverminisations are becoming so frequent that a full-time spray gang could be employed to cope with the demand.

## IX. MISCELLANEOUS.

The following schedule of inspections has been submitted by the Health Inspector -

/Schedule ......

## SCHEDULE OF INSPECTIONS CARRIED OUT DURING THE YEAR ENDED 31.12.62

| | Pigg's Peak | Mbabane | Mankaiana | Manzini | Stegi | Hlatikulu | Goedgegun | Gollel | Rural |
|---|---|---|---|---|---|---|---|---|---|
| Bakeries | | 32 | | 6 | 6 | 2 | 7 | 2 | |
| Brickfields | | | | 1 | | | | | |
| Building Sites | | 101 | | 90 | 20 | | 10 | | |
| Bantu Hotels | | 4 | | 4 | 3 | | | 2 | |
| Complaints | | 37 | 1 | 43 | 4 | | 12 | | |
| Courts | | | | 2 | | | | | |
| Clubs | 2 | 6 | | 2 | 3 | 2 | 2 | | |
| Camp Sites | | | | 1 | | | | | |
| Compounds | 1 | 10 | 2 | | | | | | |
| Dairies | | 4 | | 1 | | | 4 | | |
| Eating Houses | 3 | 16 | | | | | 4 | | |
| Flats; Factories | | 23 | | 10 | | | 2 | | |
| Foodstuffs | 4 | 40 | 2 | 53 | | | 23 | | |
| Fumigations | | 2 | | 6 | | | 1 | | |
| Gaols | | 2 | 3 | | 1 | | 1 | | |
| General Dealers | 4 | 40 | 4 | 42 | 10 | | 21 | | |
| House Drainage | | 16 | | 22 | 4 | | | | |
| Hospitals and Clinics | | 9 | 4 | | | | | | |
| Hotels | 2 | 18 | 4 | 8 | 8 | 2 | 8 | 4 | |
| Hairdressers | | 4 | | 2 | | | 1 | | |
| House Inspections | | 4 | | 5 | 2 | | 7 | | |
| Hide Stores | 1 | 2 | | 2 | | | | | |
| Interviews | | 31 | | | | | | | |
| Licence Applications | | 16 | | | | | 3 | | |
| Markets | 4 | 24 | | 16 | 4 | 3 | 7 | | |
| Meetings | | 2 | 1 | 6 | 5 | 1 | 5 | | |
| Msunduza | | 9 | | | | | | | |
| Night Soil Disposal | | 6 | | 12 | 2 | 2 | 2 | | |
| Plans | | 58 | | 45 | 10 | | 4 | | |
| Pit Latrines | | 6 | 4 | 6 | | | | 2 | |
| Pail Closets | | 23 | 4 | 13 | | | | | |
| Public Conveniences | 4 | 48 | 6 | 7 | 6 | 3 | 10 | | |
| Refuse (bins) | | 23 | | 14 | 2 | | | | |
| Refuse disposal | 4 | 11 | | 12 | | | 2 | | |
| Slaughter poles | | | 8 | | | | | 2 | |
| Schools | | 1 | | | | | 2 | | |
| Sandla | | 3 | | | | | | | |
| Swimming Baths | | 12 | | 10 | 1 | 2 | 2 | | |
| Show Grounds | | | | 6 | | | 8 | | |
| Septic Tanks | 1 | | | 18 | | | 4 | | |
| Temporary Latrines | | 4 | | 13 | | | | | |
| Tea Rooms | 2 | 2 | 2 | 25 | | | 5 | | |
| Vacant Stands | | | | 4 | 2 | | 2 | | |
| Water Samples | 5 | 18 | 4 | 20 | 12 | 6 | 11 | | |
| Water | | | | 8 | 4 | 2 | | | |
| Abattoirs | 4 | 35 | | 130 | 6 | 4 | 6 | | |
| TOTALS | 41 | 702 | 49 | 565 | 115 | 29 | 172 | 16 | |

/X. STAFF ......

## X, STAFF.

Mr. P. Matthews joined the Health Office staff at the beginning of the year and is filling the post of Smear Examiner.

Mr. J. Bateson, Health Inspector, did not renew his contract and left the department at the end of the year.

I wish to record my sincere appreciation for the efficient manner in which all the staff of the Health Office have carried out their various duties throughout the year.

R. D. GAULDIE

MEDICAL OFFICER OF HEALTH.

APPENDIX III

## ANNUAL REPORT OF THE MBULUZI LEPER COLONY
## FOR THE YEAR ENDING 31ST DECEMBER, 1961.

### I. Staff.

| | |
|---|---|
| Dr. K. A. Stark, | Medical Superintendent, |
| Dr. David Hynd, C.B.E., | Medical Officer (Medical Superintendent until May 1961) |
| Miss E. Cole, M.B.E., S.R.M., S.C.M., | Matron |
| Miss B. Mamba | Nurse |
| Miss G. Ngoza | Nurse-Aid |
| Rev. Samuel Dlamini | Chaplain |
| Mrs. Prisca Manana | School Teacher |
| 2 Labourers | |

### II. State during past year.

No. of patients December 1960 - 33
" " " " " 1961 - 41

### III. Additions to Population.

| | Males | Females | Total. |
|---|---|---|---|
| Admissions | 13 | 7 | 20 |
| Re-admissions | 1 | 5 | 6 |
| | 14 | 12 | 26 |

### IV. Losses in Population.

| | | | |
|---|---|---|---|
| Deaths | - | - | - |
| Desertions | - | 1 | 1 |
| Discharges | 9 | 10 | 19 |
| | 9 | 11 | 20 |

### V. Origin of Patients Admitted.

| | | | | Percentage |
|---|---|---|---|---|
| Stegi | - | 2 | 2 | 7.7 |
| Mbabane | 5 | 6 | 11 | 42.3 |
| Mankaiana | 5 | 2 | 7 | 26.9 |
| Pigg's Peak | 1 | 1 | 2 | 7.7 |
| Hlatikulu | 3 | 1 | 4 | 15.4 |
| | 14 | 12 | 26 | 100.0% |

### VI. Duration of Disease before admission.

| Duration | Admissions | Percentage. |
|---|---|---|
| 0 - 1 years | 11 | 55 |
| 1 - 2 " | 3 | 15 |
| 2 - 3 " | 2 | 10 |
| 3 - 4 " | 2 | 10 |
| 4 - 5 " | 2 | 10 |
| | 20 | 100% |

/Classification...

## VII. Classification on Admission.

| Type | Admissions | Percentage. |
|---|---|---|
| Lepromatous | 4 | 20 |
| Neural | 16 | 80 |
| | 20 | 100 |

## VIII. Average Age on Admission - 37.1 years

## IX. Proportion of Children to Total Admissions.

There was 1 admission of children under the age of 16 years out of a total of 20 admissions, i.e. 5%

## X. Treatment.

Attendances at the dispensary - 1320

Diseases Treated:

| | |
|---|---|
| Conjunctivitis | 12 |
| Diarrhoea | 12 |
| Influenza | 16 |
| Lepra reaction | 9 |
| Malnutrition | 4 |
| Tapeworm | 3 |
| Tropic Ulcers | 26 |

## XI. Laboratory Report.

| | Positive Skin | Negative. Skin |
|---|---|---|
| Lepromatous | 15 | 10 |
| Neural | - | 37 |
| | 15 | 47 |

## XII. Financial.

Running costs for the year ending 31st December 1961 -

| | |
|---|---|
| Food | R751-15 |
| General Supplies | 818-11 |
| Salaries and wages | 1298-49 |
| Medical Supplies | 617-73 |
| Repairs | 79-82 |
| Telephone and Office Supplies | 8-07 |
| Railage and transport | 128-18 |
| Insurance | 43-35 |
| | R3798-90 |

## Conclusion.

In spite of changes in personnel the work in the Leper Colony has progressed rather smoothly this past year.

We are grateful for the assistance of Sister M. Bagley, who carried on till Sister E. Cole, M.B.E., arrived in June to resume her work as Matron at the Colony. Following their return from overseas leave, Dr. and Mrs. David Hynd have taken up residence in the doctor's house. Theyhave been able to lend a helping hand during the last two months.

/It .....

It will be noted that there have been 26 admissions during the year, 6 of these being re-admissions for various reasons, primarily that of a humanitarian nature as it is often difficult for these to make adjustments into a rigorous primitive society. However, the 20 new cases in the Territory give food for thought. Undoubtedly, the disease is not yet under control and it is felt that a more active follow-up of contacts would reveal many more that are in the early stages of the disease. These would respond well to treatment and with minimum residual effects be able to resume their places in the community.

The basic treatments are still the Diaminodiphenylsulphone (D.A.D.P.S) and Diphenylthiourea (Ciba 1906). Recently a new drug has been tried on a few patients. This is Diethyldithiolisophthalate (Etisul), a preparation which is used as an inunction and has been favourably reported on. No estimate of its value on our patients can be made at this early date.

We wish to express our gratitude to all who have helped to make the running of the Colony a success during this year - to the Red Cross Society with their visits and Christmas treats, the Mission to Lepers that supplied a Landrover, the Public Works Department who have helped to maintain roads and repairs, the Swaziland Government, the Church of the Nazarene and many others, who with their goods and services have helped make lighter and happier the lot of an unfortunate people.

K. A. STARK

MEDICAL SUPERINTENDENT.

APPENDIX IV

## GOVERNMENT HOSPITALS AND CLINICS

| | | Mbabane | Hlati-kulu | Man-kaiana | Pigg's Peak | Total |
|---|---|---|---|---|---|---|
| **Establishment** | | | | | | |
| Medical Officers | | 4 | 3 | - | 1 | 8 |
| Matron | | 1 | 1 | - | | 2 |
| Nursing Sisters | | 6 | 3 | 1 | | 10 |
| Pharmacist/Storekeeper | | 1 | 1 | - | - | 2 |
| Radiographer | | 1 | - | - | - | 1 |
| Housekeeper | | 1 | - | - | - | 1 |
| Medical Assistants | | 1 | 1 | 1 | - | 3 |
| Laboratory Assistants | | 1 | 1 | - | - | 2 |
| Dispensers | | 2 | 1 | - | - | 3 |
| Pupil Dispensers | | - | 2 | - | - | 2 |
| Nurses | | 34 | 26 | 6 | 6 | 72 |
| Outpatient Attendants | | 3 | - | 1 | - | 4 |
| Ambulance Drivers | | 2 | 2 | - | 1 | 5 |
| Ward Attendants and Orderlies | | 15 | 12 | 1 | 3 | 21 |
| BEDS. | European | 8 | 8 | - | - | 332 |
| | African | 143 | 127 | 24 | 22 | |
| ADMISSIONS: | European | 325 | 116 | - | - | 441 |
| | Africans | 3636 | 2749 | 1490 | 1055 | 8930 |
| DAILY AVERAGE NO. OF IN-PATIENTS. | | | | | | |
| | European | 4.65 | 1.68 | - | - | 436.52 |
| | African | 198.16 | 145.93 | 43.87 | 41.23 | |
| DEATHS: | European | 2 | 1 | - | 1 | 4 |
| | African | 149 | 140 | 16 | 36 | 341 |
| OPERATIONS: | | 1528 | 427 | - | 88 | 2043 |
| X-RAY: | Examinations | 3305 | 1542 | - | - | 4847 |
| | Screenings | 228 | 7 | - | - | 235 |
| OUT-PATIENTS. | | | | | | |
| 1st Attendances | | | | | | |
| | European | 4221 | 1392 | 30 | 399 | 6042 |
| | Africans | 23222 | 15041 | 9550 | 8444 | 56257 |
| Subsequent Attendances: | | | | | | |
| | Europeans | 4895 | 942 | 66 | 160 | 6063 |
| | Africans | 18783 | 9642 | 3920 | 1609 | 33954 |
| | Total | 59121 | 27017 | 13566 | 10612 | 102316 |

/Clinics

## CLINICS

| | First Attendances | | Subsequent Attendances | | Total Attendances | |
|---|---|---|---|---|---|---|
| | E | A | E | A | E | A |
| **HLATIKULU DISTRICT** | | | | | | |
| Goedgegun | 893 | 14152 | 1144 | 9888 | 2037 | 24040 |
| St. Phillips Mission ++ | 13 | 3958 | - | 1155 | 13 | 5113 |
| Mhlotsheni | 30 | 5146 | 21 | 2941 | 51 | 8087 |
| Hluti | 86 | 3706 | 87 | 2164 | 173 | 5870 |
| Sipofaneni | 24 | 6255 | 2 | 3217 | 26 | 9472 |
| Lubuli + | 21 | 3667 | 7 | 889 | 28 | 4556 |
| Vimy Ridge (Gollel) | - | 815 | - | - | - | 815 |
| **PIGG'S PEAK DISTRICT** | | | | | | |
| Horo | | 10158 | | 7160 | | 17318 |
| Lesters + | | 3288 | | 1911 | | 5199 |
| **MBABANE DISTRICT** | | | | | | |
| Government Farm | | 6146 | | 2577 | | 8723 |
| Mahlangatshe (May-December 1961) | | 2200 | | 1331 | | 3531 |
| **STEGI DISTRICT** | | | | | | |
| Nomahasha + | | 1062 | | 276 | | 1338 |
| | | GRAND TOTAL | | | 2328 | 104870 |
| & | | | | | | |

+ = Clinics staffed and supplied by the Swazi National Treasury

++ = Roman Catholic Clinic, supplied and supervised from Hlatikulu Hospital.

APPENDIX V

## MISSION HOSPITALS AND CLINICS.

| | | Raleigh Fitkin Memorial Hospital | Good Shepherd Hospital | Mahamba Methodist Hospital | TOTALS |
|---|---|---|---|---|---|
| ADMISSIONS: | European | 420 | 27 | 4 | 451 |
| | African | 5476 | 856 | 818 | 7150 |
| DAILY AVERAGE NO. OF IN-PATIENTS. | | | | | |
| | European | 6.24 | 0.43 | 0.08 ) | 321.36 |
| | African | 250.265 | 24.8 | 39.55 ) | |
| BEDS. | European | 8 | 2 | - ) | 390 |
| | African | 302 | 33 | 45 ) | |
| DEATHS: | European | 7 | - | - | 7 |
| | African | 216 | 26 | 35 | 277 |
| OPERATIONS | | 1347 | 200 | 179 | 1726 |
| X-RAY: | Examinations | 1703 | 226 | 357 | 2286 |
| | Screening | 4 | 70 | - | 74 |
| OUT-PATIENTS. | | | | | |
| 1st Attendances: | | | | | |
| | European | 4527 | 388 | 50 | 4965 |
| | African | 20205 | 4362 | 1591 | 26158 |
| Subsequent Attendances: | | | | | |
| | European | 1431 | 113 | 75 | 1619 |
| | African | 12420 | 1091 | 1312 | 14823 |
| | TOTALS | 35590 | 5954 | 3028 | 47765 |

/Clinics...

## MISSION CLINICS.

| | First Attendances | | Subsequent Attendances | | Total Attendances | |
|---|---|---|---|---|---|---|
| | E | A | E | A | E | A |
| NAZARENE MISSION | | | | | | |
| Endingeni | 1 | 4591 | - | 1629 | 1 | 6220 |
| Stegi | 42 | 4197 | 43 | 2338 | 85 | 6535 |
| Pigg's Peak | 4 | 2136 | 1 | 1124 | 5 | 3260 |
| Mayiwane | - | 1093 | - | 3838 | - | 4931 |
| Ebenezer | - | 598 | - | 579 | - | 1177 |
| Mliba | - | 664 | - | 1382 | - | 2046 |
| Mafuteni | - | 402 | - | 683 | - | 1085 |
| Bhekinkosi | - | 1073 | - | 684 | - | 1757 |
| Balegane | - | 892 | - | 1238 | - | 2130 |
| Malinda | - | 1001 | - | 805 | - | 1806 |
| Tambankulu | 3 | 3139 | - | 3148 | 3 | 6287 |
| Tembelihle (June-October) | 5 | 192 | - | 310 | 5 | 502 |
| Ensingweni (January-April) | - | 33 | - | 56 | - | 89 |
| Mapalaleni | - | 239 | - | 157 | - | 396 |
| Manzana | - | 87 | - | 71 | - | 158 |
| TOTALS | 55 | 20337 | 44 | 18042 | 99 | 38379 |
| METHODIST MISSION. | | | | | | |
| Gege | - | 946 | - | 657 | - | 1603 |
| Dwaleni (August-December) | - | 170 | - | 21 | - | 191 |
| Other Clinics and Schools | - | 1373 | - | - | - | 1373 |
| TOTALS | - | 2489 | - | 678 | - | 3167 |
| TOTAL MISSIONS | 55 | 22826 | 44 | 18720 | 99 | 41546 |

APPENDIX VI

## RETURN OF CASES TREATED : GOVERNMENT AND MISSION HOSPITALS, 1961.

| Detailed List No. | Group Causes | Total Cases | Out-patients P | Out-patients G | In-patients P | In-patients G | Deaths P | Deaths G |
|---|---|---|---|---|---|---|---|---|
| 001-008 | Tuberculosis, Respiratory System | 857 | 4 | 249 | 20 | 584 | - | 67 |
| 010 | Tuberclosis of Meninges or C.N.S. | 13 | 1 | 1 |  | 11 |  | 3 |
| 011 | Tuberculosis of Intestine and Peritoneum | 78 |  | 13 | 1 | 64 |  | 3 |
| 012-013 | Tuberculosis of Bones & Joints | 78 |  | 48 | 3 | 27 |  |  |
| 014-019 | Tuberculosis - All other forms | 196 |  | 103 | 3 | 90 |  | 5 |
| 020 | Congenital Syphilis | 82 |  | 52 |  | 30 |  |  |
| 021 | Early Syphilis | 402 | 6 | 371 | 2 | 23 |  |  |
| 024 | Tabes Dorsalis | 3 |  | 1 |  | 2 |  | 1 |
| 022-023)<br>026-029) | All other Syphilis | 230 |  | 204 |  | 26 |  |  |
| 030-035 | Gonococcal Infection | 1767 | 67 | 1628 |  | 72 |  |  |
| 036-039 | Other Venereal Diseases | 94 |  | 94 |  |  |  |  |
| 040-041 | Enteric Fever | 272 | 2 | 8 | 10 | 252 |  | 10 |
| 044 | Brucellosis | 4 |  | 1 |  | 3 |  |  |
| 045 | Bacillary Dysentery | 479 | 41 | 283 | 18 | 137 |  | 2 |
| 046 | Amoebiasis | 242 | 19 | 57 | 19 | 147 | 1 | 6 |
| 050 | Scarlet Fever | 1 | 1 |  |  |  |  |  |
| 052 | Erysipelas | 3 |  |  |  | 3 |  |  |
| 053 | Septicaemia | 4 |  |  | 1 | 3 |  | 1 |
| 055 | Diphtheria | 6 |  |  |  | 6 |  | 2 |
| 056 | Whooping Cough | 626 | 14 | 515 | 13 | 84 |  | 2 |
| 057 | Meningococcal Infections | 4 |  |  |  | 4 |  | 2 |
| 060 | Leprosy | 15 |  | 12 |  | 3 |  |  |
| 061 | Tetanus | 12 |  |  |  | 12 |  | 6 |
| 080 | Acute Poliomyelitis | 3 |  |  |  | 3 |  | 1 |
| 081-083 | Late Effects of Poliomyelitis | 2 |  |  |  | 2 |  |  |
| 085 | Measles | 828 | 34 | 634 | 20 | 140 |  | 1 |
| 092 | Infectious Hepatitis | 122 | 14 | 74 | 5 | 29 |  |  |
| 104 | Tick-bite Fever | 27 | 21 | 5 | 1 |  |  |  |
| 116 | Malaria | 31 | 4 |  | 9 | 18 |  |  |
| 123-1 | Bilharzia (Vesical) | 913 | 62 | 791 |  | 60 |  |  |
| 123-0 | Bilharzia (Intestinal) | 22 |  | 14 |  | 8 |  |  |
| 126 | Tape Worm | 1169 | 25 | 1089 | 6 | 49 |  |  |
| 130-0 | Ascariasus | 967 | 19 | 876 | 1 | 71 |  |  |
| 124,128)<br>130-1 ) | Other Helminthic Diseases | 173 | 59 | 109 |  | 5 |  |  |
| 049 | Food Poisoning | 15 |  |  |  | 15 |  |  |
| 087 | Chickenpox | 265 | 10 | 239 |  | 16 |  |  |
| 131 | Dermatophytosis | 807 | 13 | 764 |  | 30 |  |  |
| 135 | Scabies | 82 | 3 | 75 |  | 4 |  |  |
| 137,138 | Other Infective and Parasitic Diseases. | 238 | 56 | 154 | 4 | 24 |  | 1 |

/Maglignant ......

| Detailed List No. | Group Causes | Total Cases | Out-patients P | Out-patients G | In-patients P | In-patients G | Deaths P | Deaths G |
|---|---|---|---|---|---|---|---|---|
| | Maglignant Neoplasms: | | | | | | | |
| 140-150 | (a) Mouth, Pharynx & Oesophagus | 4 | | 2 | | 2 | | 1 |
| 151-154 | (b) Stomach, Intestine & Rectum | 6 | 2 | | | 4 | | |
| 161-163 | (c) Larnyx, Trachea, Lung | 2 | | | | 2 | | 1 |
| 170 | (d) Breast | 7 | 4 | 1 | | 2 | | |
| 171 | (e) Cervix Uteri | 12 | 2 | 3 | | 7 | | 1 |
| 172 | (f) Body of Uterus | 4 | | 3 | | 1 | | |
| 177 | (g) Prostate | 6 | | | | 6 | | 2 |
| 191-9 | (h) Skin | 5 | 1 | 2 | | 2 | | 1 |
| 196-197 | (i) Bone & Connective Tissue | 1 | | | | 1 | | |
| 199 | (j) All other Sites | 31 | | 2 | 5 | 24 | 1 | 5 |
| 204 | Leukaemia | 4 | 1 | | | 3 | | 1 |
| 210-239 | Benign Neoplasms | 479 | 130 | 182 | 11 | 156 | | |
| 250-251 | Non-Toxic Goitre | 210 | 6 | 197 | 2 | 5 | | |
| 252 | Thyrotoxicosis | 15 | 2 | 10 | | 3 | | |
| 260 | Diabetes Mellitus | 86 | 14 | 54 | 6 | 12 | | 1 |
| 281 | Pellagra | 938 | 1 | 807 | | 130 | | 6 |
| 282 | Scurvy | 13 | | 11 | | 2 | | |
| 286-6 | Kwashiorkor | 487 | 1 | 216 | | 270 | | 24 |
| 286-5 | Malnutrition - un qualified | 1426 | 18 | 1157 | 1 | 250 | | 41 |
| 290 | Hyperchromic Anaemias | 17 | 2 | 11 | 1 | 3 | | 1 |
| 291 | Hypochromic Anaemias | 14 | | 8 | | 6 | | |
| 292,293 | Anaemia, unspecified | 907 | 58 | 824 | | 25 | | |
| 241 | Asthma | 428 | 124 | 188 | 16 | 100 | 1 | 2 |
| 240,242)<br>245 ) | Other Allergic Disorders | 416 | 92 | 278 | 3 | 43 | | |
| 300-309 | Psychoses | 25 | 6 | 10 | 1 | 8 | | |
| 310,324)<br>326 ) | Psychoneuroses & Hysteria | 445 | 146 | 233 | 13 | 53 | | |
| 325 | Mental Deficiency | 55 | | 37 | | 18 | | 2 |
| 330-334 | Vascular Lesions of C.N.S. | 44 | 21 | 1 | 2 | 20 | 2 | 6 |
| 340 | Meningiyis (Non-Meningococcal) | 23 | | 2 | | 21 | | 7 |
| 353 | Epilepsy | 117 | 2 | 66 | 3 | 46 | | |
| 370-379 | Inflammatory Diseases of Eye | 2402 | 187 | 1975 | 8 | 232 | | |
| 385 | Cataract | 49 | | 34 | | 15 | | |
| 387 | Glaucoma | 1 | | | | 1 | | |
| 390 | Otitis Externa | 448 | 89 | 344 | | 15 | | |
| 391-393 | Otitis Media & Mastoiditis | 1286 | 212 | 921 | 10 | 143 | | |
| 380-384 | All other Diseases of Eye | 587 | 33 | 505 | | 49 | | |
| 341-344 | All Other Diseases of C.N.S. & Sense Organs | 674 | 69 | 521 | 5 | 79 | | 7 |
| 400-402 | Rheumatic Fever | 75 | 19 | 27 | 4 | 25 | | |
| 410-416 | Chronic Rheumatic Heart Disease | 162 | 24 | 106 | 2 | 30 | | 4 |
| 420-422 | Arterio-sclerotic & Degenerative Heart Disease | 188 | 42 | 33 | 16 | 97 | 2 | 18 |

/Other ......

| Detailed List No. | Group Causes | Total Cases | Out-patients P | Out-patients G | In-patients P | In-patients G | Deaths P | Deaths G |
|---|---|---|---|---|---|---|---|---|
| 430-434 | Other Diseases of Heart | 524 | 97 | 310 | 9 | 108 | | 12 |
| 440-443 | Hypertension & Heart Disease | 156 | 30 | 92 | 1 | 33 | | 4 |
| 444-447= | Hypertension | 375 | 210 | 111 | 16 | 38 | | 3 |
| 450-456 | Diseases of Arteries | 32 | 13 | 10 | 3 | 6 | | 2 |
| 460-468 | Other Diseases of Circulatory System | 418 | 127 | 171 | 17 | 103 | | 10 |
| 470-475 | Acute Upper Respiratory Tract Infections including Acute Tonsillitis | 5290 | 826 | 3978 | 80 | 406 | | |
| 480-483 | Influenza | 3679 | 352 | 2962 | 19 | 346 | | |
| 490 | Lobar Pneumonia | 339 | 15 | 114 | 4 | 206 | | 17 |
| 491 | Broncho-Pneumonia | 1177 | 34 | 701 | 12 | 430 | | 31 |
| 492,493 | Atypical Pneumonia | 69 | 12 | 13 | 6 | 38 | | 2 |
| 500 | Acute Bronchitis | 5897 | 333 | 5152 | 30 | 382 | | 7 |
| 501,502 | Bronchitis, Chronic & Unspecified | 1282 | 70 | 1133 | 2 | 77 | | |
| 512 | Chronic Pharyngitis & Chronic Tonsillitis. | 691 | 76 | 576 | 3 | 36 | | |
| 518,521 | Empyeme & Lung Abscess | 9 | | 1 | | 8 | | 2 |
| 519 | Pleurisy | 220 | 44 | 102 | 11 | 63 | | 1 |
| 523 | Pneumoconiasis | 35 | 1 | 23 | | 11 | | |
| 520-522 | Other Respiratory Diseases | 394 | 23 | 348 | | 23 | | |
| 530 | Dental Caries | 4190 | 263 | 3889 | 8 | 39 | | |
| 531-535 | All other Diseases of Teeth & Gums | 792 | 103 | 653 | 5 | 31 | | |
| 540 | Gastric Ulcer | 31 | 22 | 3 | 4 | 2 | | |
| 541 | Duodenal Ulcer | 15 | 9 | 2 | 2 | 2 | | |
| 543 | Gastritis & Duodenitis | 1978 | 121 | 1757 | 4 | 96 | | 2 |
| 550-553 | Appendicitis | 256 | 37 | 83 | 49 | 87 | | 3 |
| 570 | Intestinal Obstruction | 20 | 1 | 1 | 2 | 16 | | 1 |
| 560 | Hernia | 147 | 30 | 73 | 10 | 34 | | 1 |
| 570-0 | Gastro-enteritis (4 weeks to 2 yrs) | 4746 | 206 | 3738 | 27 | 775 | | 84 |
| 571-1 | Gastro-enteritis (over 2 years) | 3837 | 368 | 3076 | 33 | 360 | | 20 |
| 572 | Chronic Enteritis and Colitis | 397 | 56 | 308 | | 33 | | |
| 581 | Cirrhosis of Liver | 232 | 7 | 61 | 7 | 157 | | 10 |
| 584,585 | Cholecystitis | 75 | 32 | 19 | 5 | 19 | | 1 |
| 536-539)<br>544,573)<br>580,582)<br>583,586)<br>587 ) | Other Diseases of Digestive System | 3047 | 367 | 2388 | 32 | 260 | | 10 |
| 590 | Acute Nephritis | 114 | 9 | 72 | 1 | 32 | | 1 |
| 591-594 | Chronic Nephritis | 52 | 3 | 22 | 1 | 26 | | 4 |
| 600 | Infections of Kidney | 281 | 47 | 168 | 7 | 59 | | 1 |
| 602,604 | Calculi of Urinary System | 10 | 9 | | 1 | | | |
| 610 | Hyperplasia of Prostate | 14 | 1 | 3 | | 10 | | |

/Diseases ....

| Detailed List No. | Group Causes | Total Cases | Out-patients | | In-patients | | Deaths | |
|---|---|---|---|---|---|---|---|---|
| | | | P | G | P | G | P | G |
| 620,621 | Diseases of Breast | 167 | 19 | 119 | 1 | 28 | | |
| 613 | Hydrocele | 125 | 2 | 66 | | 57 | | |
| 634 | Disorders of Menstruation | 1873 | 151 | 1599 | 10 | 113 | | |
| 601,603,)<br>605-609)<br>611,612 )<br>614-617,)<br>622-633,)<br>635-637 ) | All other Diseases of Genito-Urinary System. | 5229 | 163 | 4283 | 73 | 710 | | 21 |
| 660 | Normal Deliveries | 2340 | | | 89 | 2251 | | |
| 671, )<br>673-678 ) | Delivery with Complications | 392 | | | 17 | 375 | | 10 |
| 640,641,)<br>681,682,)<br>684 ) | Sepsis of Pregnancy, Childbirth and Puerperium | 79 | | 59 | | 20 | | |
| 642 | Toxaemia of Pregnancy | 21 | 1 | 2 | | 18 | | 1 |
| 643,644)<br>670,672) | Haemorrhage of Pregnancy & Childbirth | 10 | | 4 | | 6 | | |
| 650 | Abortion | 400 | 29 | 115 | 24 | 232 | | 5 |
| 651 | Abortion with Sepsis | 80 | | 27 | 1 | 52 | | |
| 690-698 | Infections of Skin & Subcutaneous Tissues | 2577 | 493 | 1731 | 31 | 322 | | 1 |
| 720-725 | Arthritis and Spondylitis | 540 | 87 | 350 | 5 | 98 | | |
| 726,727 | Muscular Rheumatism & Rehumatism Unqualified | 1848 | 274 | 1422 | 5 | 147 | | |
| 730 | Osteomyelitis & Peri-Ostitis | 136 | 21 | 44 | 2 | 69 | | |
| 737,745,)<br>749 ) | Ankylosis & Acquired Musculo-Skeletal Deformity | 113 | 12 | 61 | 1 | 39 | | |
| 700-714 | All other Diseases of Skin | 1654 | 299 | 1218 | 8 | 129 | | |
| 731-736 )<br>738-744 ) | All other Diseases of Musculo-Skeletal System | 388 | 249 | 88 | 5 | 46 | | |
| 750-759 | Congenital Malformations | 44 | | 30 | | 14 | | 2 |
| 760-762 | Birth Injuries | 5 | | | | 5 | | 1 |
| 765 | Ophthalmia Neonatorum | 30 | | 23 | | 7 | | |
| 770 | Haemolytic Disease (Neo-Natal) | 17 | | 1 | | 16 | | 2 |
| 773-776 | Other Diseases Early Infancy | 307 | 56 | 186 | 1 | 64 | | 7 |
| 794 | Senility | 21 | | 18 | | 3 | | |
| 788-9 | P.U.O | 273 | 38 | 87 | 10 | 138 | | 11 |
| 788-1- )<br>788-7,<br>788-9,789)<br>792,795 | All other ill-defined causes of Morbidity | 592 | 290 | 232 | 9 | 61 | | |
| 793 | Observation without need for further care. | 355 | 147 | 90 | 6 | 112 | | |

/Menopausal .....

| Detailed List No. | Group Causes | Total Cases | Out-patients | | In-patients | | Deaths | |
|---|---|---|---|---|---|---|---|---|
| | | | P | G | P | G | P | G |
| 635 | Menopausal Condition | 40 | 4 | 36 | | | | |
| 776 | Prematurity | 14 | | 1 | | 13 | | 7 |
| "E" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS AND VIOLENCE (EXTERNAL CAUSE) | | | | | | | | |
| E810-E835 | Motor Vehicle Accidents | 373 | 62 | 139 | 38 | 134 | 2 | 8 |
| E800-E802 | Other Transport Accidents | 301 | 13 | 154 | 3 | 131 | | 2 |
| E870-E895 | Accidental Poisoning | 89 | 23 | 7 | 12 | 47 | | 1 |
| E900-E904 | Accidental Falls | 2101 | 377 | 1225 | 81 | 418 | | 16 |
| E612 | Accidents caused by Machinery | 138 | 11 | 96 | 2 | 29 | | |
| E916 | Accidents caused by Fire | 360 | 17 | 218 | 7 | 118 | 1 | 13 |
| E917,E918 | Accidents caused by Hot substances and corrosives | 378 | 32 | 273 | 10 | 63 | | |
| E919 | Accidents caused by Firearms | 16 | 2 | 6 | 3 | 5 | | |
| E910-E913-)<br>E915,E920-)<br>E928,E930-)<br>E965 ) | All other accidental causes | 3179 | 568 | 2002 | 40 | 569 | | 29 |
| E970-E979 | Suicide & Self-Inflicted Injury | 6 | 1 | 2 | 1 | 2 | | |
| E980-E985 | Assault,Homicide | 951 | 54 | 518 | 11 | 368 | 1 | 8 |
| "N" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS AND VIOLENCE (NATURE OF INJURY) | | | | | | | | |
| N800-N804 | Fracture of Skull | 107 | 4 | 8 | 14 | 81 | 3 | 11 |
| N805-N809 | Fracture of Spine & Trunk | 96 | 15 | 38 | 1 | 42 | | 3 |
| N810-N829 | Fracture of Limbs | 854 | 163 | 254 | 40 | 397 | | 4 |
| N830-N839 | Dislocation | 74 | 13 | 32 | 1 | 28 | | |
| N840-N848 | Sprains & Strains | 1199 | 176 | 903 | 14 | 106 | | |
| N850-N856 | Head Injury (Excluding Fracture) | 520 | 17 | 408 | 9 | 86 | | 6 |
| N860-N869 | Internal Injury, chest, abdomen and pelvis | 58 | 4 | 14 | | 40 | | 14 |
| N870-N908 | Laceration and open wounds | 2700 | 334 | 1514 | 66 | 786 | | 18 |
| N910-N929 | Superfician Injury contusion | 1159 | 298 | 699 | 30 | 132 | | |
| N930-N936 | Foreign Body entering through Orifice. | 282 | 48 | 182 | 3 | 49 | | |
| N940-N949 | Burns | 738 | 50 | 477 | 17 | 194 | 1 | 13 |
| N960-N979 | Effects of Poisons | 143 | 32 | 27 | 5 | 79 | | 1 |
| N950-N959)<br>N980-N999) | All other effects of External Causes | 150 | 12 | 78 | 8 | 52 | | 7 |

/Medical ......

| Detailed List No. | Group Causes | Total Cases | Out-patients P | Out-patients G | In-patients P | In-patients G | Deaths P | Deaths G |
|---|---|---|---|---|---|---|---|---|
| Y00 | Medical Examinations, | 5352) | 317 | 4867 | | | | |
| | Boards and Tax Exemption Examinations | ) | | 168 | | | | |
| Y02 | Prophylactic Injections | 1217 | 651 | 566 | | | | |
| (a) | Smallpox Vaccination | | 283 | 84 | | | | |
| (b) | T.A.B. | | 77 | 72 | | | | |
| (c) | Diphtheria, Whooping Cough and Tetanus. | | 130 | 241 | | | | |
| (d) | Diphtheria | | | | | | | |
| (e) | Tetanus | | 18 | 136 | | | | |
| (f) | Poliomyelitis | | | | | | | |
| (g) | Yellow Fever. | | 143 | 33 | | | | |
| Y06 | Antenatal Examinations | 5814 | 307 | 5507 | | | | |
| Y08 | Attendants admitted as Inpatients with sick children. | 1224 | | | 6 | 1218 | | |
| TOTAL "NEW" PATIENTS. | | 109394 | 10574 | 81095 | 1178 | 16547 | 11 | 618 |

SUBSEQUENT ATTENDANCES.

| | TOTAL | E. | A |
|---|---|---|---|
| Subsequent Ante-Natal Attendances | 5867 | 441 | 5426 |
| Subsequent Prophylactic Injections | 605 | 337 | 268 |
| Subsequent Child Welfare Attendances | 2596 | | 2596 |
| All Other Subsequent Attendances | 47391 | 6911 | 40480 |
| TOTALS: | 56,459 | 7689 | 48770 |

P = Private Ward Sections of the Hospital

G = General Ward Sections of the Hospital.

LONDON SCHOOL OF HYGIENE * AND TROPICAL MEDICINE *
LIBRARY
17 APR 1963